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EDITORIAL.

"Commercial Red" Bark.

THE "commercial red" cinchona bark of the drug market, according to a recent article by Dr. R. V. Mattison, is far from possessing the qualities with which it is generally credited. According to the experience of those who have occasion to know its actual value, four-fifths of the so-called "red bark" is "nearly or quite devoid of crystallizable alkaloids, and, beyond whatever tonic qualities may be expected from the cinchotannic acid present, is quite devoid of remedial virtues as a medicine." The *commercial* red bark is that which has been rejected by the quinine manufacturers as absolutely or nearly worthless. This explains why Huxam's tincture is no longer found to be of medicinal value, few retail druggists taking the trouble to assure themselves by an analysis of the quality of the crude article supplied to them. Dr. Mattison insists that "a rich bark cannot be obtained at a low price; that a commercial red bark is never *red* bark; is, as a rule, absolutely worthless, and any price paid for it is usually money uselessly expended for a worthless drug, and that when a druggist accepts a worthless bark and places it among his stock, he becomes directly responsible for its quality and should be held so by everybody purchasing or using it.

As a curious illustration of the prevailing grade of bark sold, Dr. Mattison says that compound tincture of cinchona is much better when made by mixing the popular fluid extract, purchased of a wholesale manufacturer, with the suitable amount of alcohol and water, than when directly made from the bark by the druggist. This is owing to the care which the wholesale manufacturer is obliged to use in the choice of his material.

The following table is given of analyses of "commercial red" barks, illustrative of their general character; quinine and cinchonidia being estimated as crystallized sulphates, the actual amount of their pure alkaloids being about one-fourth less.

No.	Quinia.	Cinchonidia	Cinchonia and Amorphous Alkaloid	REMARKS.
1	.....	0.6041	0.1214	
2	.....	Traces.	Traces.	
3	.....	.....	3.2341	Very handsome clean bark.
4	Traces.	0.3331	1.0433	Very bright and handsome bark.
5	.....	0.3094	1.4501	Sold as very high grade.
6	.....	.....	1.9012	
7	.....	.....	.....	
8	.....	.....	.....	
9	.....	.....	0.596	
10	.....	.....	0.447	
11	0.1761	1.0932	.....	Said to be "very rich." For a commercial red bark it does contain a large amount of Cinchonidia.
12	0.3100	0.8831	0.1312	
13	Traces.	0.5231	Traces.	
14	Traces.	0.4322	0.4312	
15	.....	1.634	0.8281	
16	0.2134	.....	.....	
17	0.2863	.....	2.1847	Dull and musty looking.
18	Traces.	0.7634	0.7631	Very clean and bright.
19	0.4681	.....	0.7438	
20	0.2314	.....	1.7631	

MATERIA MEDICA, PHARMACY, AND THERAPEUTICS.

The Senega of Commerce.*

BY J. U. AND C. G. LLOYD.

THE species of Polygala that should yield senega, and which is official, is *Polygala Senega* Linn.

The localities referred to by the authors of our dispensatories, and other writers, as furnishing the senega of commerce, are the Southern and Western States. Such States of the South and West as furnish senega for the market, and which fact is personally known to us, are Kentucky, Virginia, Tennessee, North Carolina, Arkansas, Missouri, Ohio, Indiana, and Illinois. Doubtless small amounts of senega are also derived from the northern portions of other Southern States, and from portions of certain Northern and Eastern States that border the States we have named. In fact, the typical species (*Polygala Senega* Linn.) is most common in the Eastern States, and the root of this agrees in appearance and characteristics with senega of the South and West. (We call attention to the plant from Vermont in our herbarium.) It has been uniformly the case that all lots of senega examined by ourselves, and which came direct from diggers or first hands from the States mentioned, agree with the accepted descriptions. In connection with the history of this drug, we have made it an object during the past few years to consult brokers and dealers in indigenous drugs throughout the portions of our country we have named. Their reports confirm, without exception, the above, such senega being known by drug brokers as the "Southern Senega." In connection with this part of our subject, we beg leave to call attention to this specimen of *Polygala Senega*, var. *latifolia* Linn. of our herbarium, which was collected by ourselves in Kentucky, about twenty-five miles south of Cincinnati. This we know to yield a root identical with the officinal, and about the same in size, and is *Southern Senega*. Senega, from all the senega-producing States we have named, agrees in appearance, and, as the bulk of it is derived from States south of the Ohio River, the term "Southern Senega" has been accepted as applicable to the drug that answers the description of what authorities accept as officinal senega. The States Ohio, Indiana, and Illinois were once Western States. Since then the West has moved far beyond, and thus it is that even in Cincinnati, once a western city, the senega which is derived from these States is called by dealers "Southern Senega." This senega reaches our city (Cincinnati) in parcels of from a few pounds to bales of one or two hundred pounds. It comes from country stores and direct from the gatherer. Sometimes it is nice and clean, again it is scarcely washed at all, and frequently is gathered with the top attached, and in this manner sent to market. Owing to the high price, it is not so liable to admixtures as cheaper roots, but it is not unusual to find others of our indigenous roots mixed with it. There have been several articles written upon this subject in our journals at home and abroad, so that it is not necessary for us to dwell upon this phase of the question, other than to say we believe the larger share of these admixtures to result from carelessness with the digger rather than intent to adulterate. In concluding our remarks upon Southern Senega, we call attention to the accompanying specimens, derived as follows:

No. 1 from Kentucky.
No. 2 " "
No. 3 " Indiana.

Northern Senega. Let us bear in mind that the original senega-root, and all that was used until about ten years ago, was derived from the sections of country that we have named.* To produce it, the typical species, *Polygala Senega* Linn. and *Polygala Senega* var. *latifolia*, are gathered indiscriminately. Until a few years ago there was no reason for a division of the senegas of commerce. Now, however, dealers in senega speak of "Northern Senega," the distinction being brought about by the appearance in market of a root unlike the original, such being derived from the north-west, about the 44th degree of latitude; and from the States Wisconsin and Minnesota. The first consignments of this senega that we have been able to trace were noted about ten years ago. It is very large, sometimes white, again rather dark-brown. The knot at the top of the root, from which sprung the stems, is often two or three inches in diameter, even of the dried plant. The root just below the knotty head is (when dry) from the size of the little finger to that of the thumb of a man. It is from six to ten inches in length, and generally destitute of the keel-like ridge which is so marked a characteristic of Southern Senega. The root of this northwestern variety is not so contorted and branched as that of the Southern Senega, being large and fleshy. It has the unmistakable relationship appearance of the Polygalas, the odor and taste of senega, and occasionally (the rare exception) more or less of the keel-like ridge. The first notice that we can find in print regarding this senega is that of Mr. Wm. Saunders, in the Proceedings of the American Pharmaceutical Association, 1876. Since that day, the drug has become familiar in the market, commanding about

*Read at the last meeting of the Amer. Pharm. Assoc.

*The typical Polygala Senega *Linn.* is native to the eastern portions of the United States; however, it does not seem to be in abundance sufficient to repay gathering.—L.

five cents less per pound than the Southern Senega. It has been examined microscopically by Mr. Thomas Greenish (*Amer. Journ. Phar.*, 1878) and by Mr. Geo. Gœbel, Jr. (*Amer. Journ. Pharm.*, 1881).* Prof. J. M. Maisch has been interested in this large senega for some years, and once traced a lot of it to Missouri. We know of one lot that came from St. Louis, Mo., but we question very much if it grew in that State. Doubtless it came *via* St. Louis from its home in the North-west.

In connection with the history of this drug, we may say that, while its origin has been a matter of doubt, and all endeavors to locate it botanically have heretofore failed, we are convinced that dealers have had no reason to preserve silence or secrecy other than for the protection of their interests as tradesmen. It seems to us, however, that the uncertainty regarding the drug has acted to unsettle the price, for it has ever been a questionable root, and many persons refused to accept it.

Last winter, Mr. W. W. Moser, of Cincinnati, offered to procure for us the entire plant when in season. Mr. Moser is an extensive dealer in indigenous medicinal plants, and has been in the business for twenty-five years or more; and handles considerable amounts of Northern and of Southern Senega. According to promise, Mr. Moser procured from parties that gather the Northern Senega (either in Wisconsin or Minnesota) a specimen of the plant, and we present it (specimen No. 7). It will be noticed that the root of this one plant is larger than the average of the Southern Senega, but smaller than the average of the Northern Senega. The keel-like ridge exists only for a short distance from the top, and the general appearance of the root is that of the Northern Senega of commerce. We call attention now to the plant with root attached, which is fresh from one of the localities which supplies the large senega of commerce. This specimen was furnished us by Messrs. Huber & Co., of Fond du Lac, Wisconsin, a firm that is known over our entire country for its dealings in indigenous drugs. They are first hands for Northern Senega, in which they have an extensive trade, therefore the genuineness of these specimens cannot be questioned.† Both this and the plant obtained from Mr. Moser are *Polygala Senega* Linn. of a variety that seems to be intermediate between the typical species (*Polygala Senega* Linn.) and the *Polygala Senega* var. *latifolia*. It has narrower leaves than the variety native to the South (see specimen in our herbarium of *Polygala Senega* var. *latifolia* from Kentucky), but the leaves are not so narrow as those of the typical form of the plant, a specimen of which from Vermont can also be seen in our herbarium. It agrees exactly with a specimen in our herbarium to which we call attention, derived from Chicago; and which is also intermediate between the typical species of *Polygala Senega* and the *var. latifolia*.*

Thus it follows that the plant which has created such a disturbance is botanically the officinal senega. The rich black soil and the climate of portions of those North-western States seems to be so well adapted to this plant that it grows luxuriantly, and so as to far exceed in size anything we have ever before known from any species of Polygala of our country, and to somewhat alter its appearance and the internal structure of the root. This fact has led us to question the authenticity of the drug, to think that perhaps the large senega was derived from some other species of Polygala, or even from another natural order.†

Remarks. This Northern Senega is known as "False Senega," "White Senega," and in one or two instances has been called "Southern Senega." Regarding these points, we find that, as it is derived from the officinal species, it is not *false senega*. The term "White Senega" is not appropriate, for it is often dark-brown (see specimen 6), and in color it does not differ more than other senegas of the market, as can be seen by referring to the two lots of senega we present from Kentucky. The expression "Southern Senega" is not admissible, for it does not come from the South, and upon the contrary, most of the senega of olden times *was* from the South. Undoubtedly, therefore, the large senega will continue to be known by dealers as "Northern Senega," or as "large senega."

NOTE.—Since the foregoing was written, Prof. Maisch contributed an article (*Am. Pharm. Journ.*, Aug., 1881, p. 387) on a specimen of senega which he obtained from Alabama, and which he thought might likely furnish the large senega of commerce. This Southern species, the *Polygala Boykinii* Nutt. is the only native species that, to

*We take it for granted that the senega these gentlemen examined was the "Northern," as it is the only senega that we are acquainted with that answers the description they give, and which is obtainable on the market. Mr. Gœbel, it is true, speaks of it as "Southern Senega," but we think this simply a confusion of terms, and that the drug was likely the regular Northern Senega.—L.

† The letter which we hold from Mr. Huber is of interest in connection with the habit of this senega, and the past and future history of the drug. It was written in reply to one we wrote him, asking for information on these points, and we present it to the Society with Mr. Huber's permission.—L. (See next page.)

* We invite attention to the lots of senega root which we present, and which were obtained direct from the States of Minnesota and Wisconsin.—L.

† We have planted specimens of this Northern Senega, and shall endeavor to cultivate the same in localities that furnish the Southern Senega, to find if the size of that root is simply due to the influence of soil and climate. It may be that the plant does not differ enough from the typical species and the variety latifolia to induce botanists to recognize it as a distinct variety, but that the grossness and internal construction of the root is permanent, and will be preserved even in other than its native situations. —L.

our knowledge, approaches in size the *Polygala Senega* Linn. We exhibit it in our herbarium, and by a comparison with the other species, this fact becomes apparent. However, we do not think that it is gathered for the market, unless the root, as a rule, resembles the officinal senega. We are convinced that it never passes through the hands of Cincinnati dealers, for all "Southern Senega" is of the form we present and have described.

AUGUST 11th, 1881.

J. U. LLOYD, ESQ.

DEAR SIR:—In answer to your favor of the 10th inst., would say that senega in our State is already scarce, and will in a few years become nearly extinct. The advancement of civilization and the introduction of domestic animals is rapidly exterminating many of our indigenous medicinal plants of the native forests and open prairies, among which senega is one of the most important. Our shipments this year will not exceed ten tons. It inhabits or grows on high rolling prairies and open timber. I have not found it in forests, never in swamps. We have made several attempts to cultivate it; have a few plants growing, but, on the whole, have met with but little success. We are, however, of the opinion that it could be cultivated if the habits of the plant and the natural laws that govern its growth were thoroughly understood. . . . J. C. HUBER.

CINCINNATI, O.

[ORIGINAL COMMUNICATION.]

Qualitative Analysis of a Solution of "Citrate of Magnesia," sold by a New York Manufacturer.

BY EDO CLAASSEN.

HAVING found it difficult to prepare a solution of citrate of magnesia that will remain clear and not precipitate, and further, that the solution of citrate of magnesia sold by the above firm always possesses these properties, I undertook some time ago to examine the same in regard to the presence of magnesia and citric acid. The usual analytical method of destroying by evaporation and subsequent ignition all organic substances, in order to determine the fixed bases, was employed by me in this case. I, therefore, evaporated about 4 oz. of the liquid in a silver dish to dryness, ignited the residue perfectly, and mixed the same with water and as much hydrochloric acid as was necessary to give the solution an acid reaction. The solution was then separated from a small quantity of coal, and a part of it was mixed with ammonia in excess, and with solutions of ammonium chloride and sodium phosphate. No precipitate was formed, not even after several hours' standing. Magnesia was not present. The rest of the liquid was then tested for the presence of potassium and sodium, and only the last one found present. Another part of the original so-called "citrate-of-magnesia solution" was now tested in regard to the acids that might be combined with the sodium, and it was ascertained that, besides a little sulphuric acid, no other acid besides tartaric was in the liquid. The so-called solution of "citrate of magnesia" was, therefore, nothing but a solution of sodium tartrate, and it could now at once be explained why this solution always keeps well, and never forms a deposit.

CLEVELAND, O.

On the most Desirable Melting Point of Petroleum Ointment.*

BY CHARLES RICE.

ANSWER to Query 7: What Melting Point is most desirable for Petroleum Ointment?

This question, which was referred to the writer for answer, has been repeatedly discussed heretofore, and may be answered briefly as follows:

Our present as well as former pharmacopœias contain two principal classes of unctuous substances, intended for external application. One of these is the class of *Cerates*, and the other that of *Ointments*. These have generally been understood to possess two entirely different functions, at least in the majority of cases, and for this reason have been carefully kept apart, although they overlap each other in a few instances. A *cerate*, as the name already implies, is a "waxy" ointment, that is an ointment stiffened by means of wax, for the purpose of raising its melting point, being intended to be used as a dressing, spread on lint, linen, or muslin. An *ointment*, on the other hand, is chiefly intended for "inunction," and for this reason should possess a melting point but little above that of the temperature of the body.

These well-known distinctions afford the means of solving the above question—at least theoretically, and also from the stand-point of the physician.

The writer has had an opportunity, during the past year, of learning the views and opinions of a considerable number of practitioners on this subject, and he only regrets that he cannot quote their statements and reports—which were made for another purpose than the drafting of the present paper—in full and with their names attached; but he is at the liberty to state that most of them, and among them the foremost dermatologists, pronounce the melting points of several of the commercial petroleum ointments *as altogether too low*. During the heat of summer particularly, and in the warmer sections of our country even in other seasons of the year, an *ointment* should not have a melting point below about 103 or 104° F., and as it is easier to soften an ointment by heat, in practice, than to stiffen it by cold, it appears preferable to select a uniform melting point for the year round, *based on the requirements of the average summer temperature*.

Petroleum ointment is principally desired by

* Read at the last meeting of the Am. Pharm. Assoc.

practitioners as a perfectly *bland*, *neutral*, and inactive base for suspending therein various topical remedies. Naturally, this very property of being perfectly bland and inactive will in many cases alone produce curative effects, because it will permit the natural healing process to proceed normally and uninterruptedly, provided the injured part is thoroughly covered so as to exclude the air.

In the opinion of most of the practitioners whose views have been solicited or tendered, at least *two* petroleum ointments of different melting points are chiefly desirable.

One of these, which could take the place of a simple lard or ointment, or other low-melting unctuous compound, should have a melting point of about 40° C. (104° F.).

The other, which could take the place of cerate or corresponding compounds of a higher melting point, should have a melting point of about 46° C. (115° F.).

Some few physicians even prefer still higher melting points for special cases; but the two just mentioned have the largest number of supporters.

The preceding would be an answer to the query: "What is the most Desirable Melting Point of Petroleum Ointment?" from the stand-point of the physician. But there is another feature connected with the query, which cannot well be separated from it, although it is not expressed in words. In fact, the query might as well have been formulated thus:

"What is the most Desirable Melting Point to be prescribed for Petroleum Ointment in the United States Pharmacopœia?"

That the introduction of petroleum ointment into the pharmacopœia has been decided on by the Committee of Revision and Publication, has already been announced through the press, and may be considered as a settled fact. Now, while the pharmacist will acknowledge, as a rule, the correctness of the distinction between ointments and cerates, and will doubtlessly agree with the opinion of the physician that there should be both a soft and a firm petroleum ointment, according as it is to be used for one purpose or other; he will, on the other hand, most probably deprecate the introduction of more than *one* kind of simple petroleum ointment in the coming pharmacopœia, because multiplicity will surely result in confusion; and, besides, because the likelihood of the pharmacopœial requirements being strictly observed will diminish in proportion to the number of grades officially recognized, particularly as the manufacture of the article is outside of the control of the retail pharmacist.

From the stand-point of the pharmacist, then, it will be safest—at least with present knowledge and experience—to recommend the official recognition of that petroleum ointment only which has the lowest melting point declared suitable by competent medical authority; and this is that melting at 40° C. (104° F.). Any higher melting point can be easily attained by incorporating with the petroleum ointment more or less *yellow wax*, and the exact consistence and melting point of the product will, therefore, more easily be within the control of the pharmacist than if he were to rely upon the alleged melting point of a manufactured product. And, even if two petroleum ointments of different melting points were made officinal, it is very likely that some physicians would still desire others, of still other melting points, for special cases, and these, at all events, would have to be specially prepared by the pharmacist.

The addition of yellow wax to petroleum ointment has long been known to yield a perfectly homogeneous and satisfactory product. Nor does it introduce into the mixture any source of deterioration—at least for any reasonable period of time, since it has been shown that the mixture remains a long while free from rancidity, if the petroleum ointment was sweet and fresh.

It has been said above that pharmacists, as a rule, will probably prefer *only one* officinal petroleum ointment, and whether this supposition is correct or not will probably be decided by the discussion of this paper, should it be of sufficient interest. But the same view is also approved by quite a number of physicians with whom the subject has been discussed, and to whom the difficulties attending the correct description and recognition of several grades in the pharmacopœia has been pointed out.

So far as the writer is aware, those who advocate the introduction of but *one* petroleum ointment do not thereby wish to contradict the fact that it would desirable to have another of higher melting point officially recognized. They only wish to point out that the official recognition of such a product would, by no means, be a guarantee that it could be procured in the market when wanted, or would actually be furnished if prescribed.

On the other hand, the pharmacist can assure the physician that he can furnish an equally satisfactory product of *controllable* and *known* melting point in the manner stated, and for this reason it is hoped that the two professions will come to the harmonious conclusion to recognize, in the forthcoming new pharmacopœia, only *one* petroleum ointment, having a melting point of 40° C. (104° F.).

Labels on Tin.—A very good method of causing labels to adhere to tin is a dilute solution of white gelatin or, better still, of isinglass. Its strength should not be more than one in twenty, and it may be applied by means of a pencil or sponge. It has this advantage, that labels applied to the surface so covered do not adhere permanently at once, but may be slid about long enough to permit their proper adjustment and straightening.—*Pharm. Zeit.* (See also below, p. 303).

The Varieties of Linseed in English Commerce.*

BY E. M. HOLMES, F.L.S.,

Curator of the Museum of the Pharmaceutical Society.

ALTHOUGH linseed has been imported into this country (England) during the last twenty years to the value of four or five millions sterling annually, only a small proportion of this quantity is used in pharmacy in the form of seed. It is perhaps on this account that the great differences in various samples of commercial linseed have received but little attention from pharmacists, although it is true that the wholesale druggist distinguishes in the rough way between Russian and English linseed, which resemble each other in size, by plunging the hand into it, the English readily giving way beneath the finger, while the Russian offers a certain amount of resistance. Some idea of the number of commercial varieties and the quantities imported may be obtained by a reference to the following returns as given in the blue books for 1879:—†

	Quarters.	
Russia (Northern ports)	579,508	923,254
" (Southern ports)	343,746	
India (Bombay and Scinde)	43,019	603,427
" (Bengal and Burmab)	560,408	
Germany		86,101
Holland		16,659
Chili		8,936
Italy		7,147
Turkey, Asiatic	2,542	4,449
" European‡	1,907	
Gibraltar		33

This table may be taken as giving a fair average of the amount imported during the past few years, with the following exceptions; a decrease has taken place in the importations from Bombay, Scinde, and Gibraltar. In 1875, 10,073 quarters of linseed were imported from Algeria, but none appears to have been received from there since that date. On the other hand, an increase has taken place in the quantity received from Southern Russia and Chili.

In Chili, linseed cultivation would appear to have only been taken up during the last few years, owing to the falling off in the demand for wheat.

It has already been shown in the pages of this and other journals that irritation is sometimes produced when linseed-meal has been applied to inflamed surfaces,§ and that in some cases nettle rash and inflammation of the air passages have been caused by its use. This action has been attributed to the presence in it of cruciferous seeds.‖ Still more recently linseed has been recommended for internal use by Dr. Sherwell, of Brooklyn, in certain skin diseases.

Although excellent papers on the microscopical characters of linseed have been published by Stoddard* and Pocklington,† and another, by Greenish,‡ on the means of detecting the adulterations in linseed meal, yet few chemists have the leisure to give a careful microscopic examination to every lot of linseed meal they purchase, and some experience would be required to recognize the powdered foreign seeds present in it.

It occurred to me, therefore, that a much simpler means of obtaining linseed meal free from foreign seeds would be to buy the linseed, examine it for the presence of injurious weed seeds, sift them out, and then grind the meal. American drug mills that can be worked by hand are now easily obtained, and this mode of procedure would have the additional advantage that the meal could be ground frequently, for it has been stated that the crushed seed rapidly oxidizes when long kept, and acquires a degree of rancidity very injurious when the poultice made from it is applied to open wounds. A large number of weed seeds are known to occur in different varieties of linseed. Dr. Voelcker§ gives the following percentages of foreign seed present in a dozen samples of linseed examined by him.

Bombay linseed	4½ per cent.
Finest do.	1¾ "
Black Sea seed	20 "
2d sample	19 "
3d sample	12½ "
Morshanski seed	7 "
Fine St. Petersburg	3 "
Common (Rijeff) St. Petersburg	41 "
2d quality	43½ "
3d quality	70 "
Medium Riga seed	35 "
Riga crushing seed	42 "
2d sample	49½ "

But it must not be supposed that weed seeds occur naturally to the extent of 49½ or 70 per cent in linseed; the average amount would probably be about 7 or 8 per cent, or from a very foul land 20 or 30 per cent. In order to produce the best qualities of linseed, such as are sold to makers of pure linseed cake and oil crushers who are prepared to pay the proper price, the weed seeds, which are mostly smaller than linseed, are separated by sifting. These siftings are subsequently added in certain proportions to linseed to form 2d, 3d or 4th qualities, according to the price which buyers are prepared to pay. This is said to be done after the linseed leaves the Russian ports; barges laden with the siftings being sent a little way out to sea to meet ships having linseed on board, and an amalgamation of the siftings with

* Reprinted from *Pharm. Journ. and Trans.*, 1881, July 23d and Aug. 13th.

† It will be noticed that American linseed is not quoted in this list, nor mentioned in the paper.

‡ Exclusive of Wallachia and Moldavia.

§ *Pharm. Journ.* (2), 11, 686. *Brit. Med. Journ.*, 1879, May 24th.

‖ *Pharm. Journ.* (3), 2, 212.

* *Pharm. Journ.* (3), 1, 663.

† *Pharm. Journ.* (3), 2, 701.

‡ *Pharm. Journ.* (3) 2, 211.

§ *Journal of the Royal Agricultural Society*, IX., p. 5.

the linseed is effected on the high seas, so that the mixture may be described on landing it in this country as "linseed genuine as imported." Good linseed can, however, always be purchased, guaranteed not to contain more than 4 per cent of foreign seed, by those who are willing to pay the proper price for it.

As the weed seeds found in linseed differ in their chemical composition, some, such as cruciferous seeds, yielding a non-drying oil, and others a nutritious farina, such as the seeds of *Polygonaceæ*, *Spergula arvensis*, and certain leguminous seeds, it is obvious that some samples would be quite unfitted for pharmaceutical use or for making linseed oil for use in painting, and others would be fitted only for cattle food, etc.

Having occasion recently to examine some samples of linseed, I was struck by the fact that, although there was great similarity in the weed seeds most abundantly found in European varieties of linseed, yet there were generally present, sometimes in small quantity only, some seeds in each commercial variety which might be regarded as distinctive of the country in which the linseed was collected, and it occurred to me that a brief description and figure of such seeds might be of use in pharmacognosy and in the arts generally, by enabling the purchaser to know what linseed he was purchasing, and what purpose it was best fitted for.

The linseeds of commerce may be roughly divided into two groups, the one consisting of seeds averaging twelve or fourteen seeds to a grain weight, and the other in which the seeds are about twice the size, so that six or seven are equal to one grain.* To the first group belong Russian, Dutch, English, and ordinary Calcutta seed, and to the second, Bombay, "bold" Calcutta, Sicilian and Ionian linseed. Of the Chilian, Gibraltar, and Algerian seed I have not been able to procure specimens.

As to the difference existing in the two groups, opinions would seem to be differ. According to Greenish, those which are grown in a tropical soil do not produce so fine a quality of oil, but yield a larger amount of farina, and make a more nutritious cake. Professor A. H. Church, on the other hand, who has paid much attention to linseed oil for use in oil painting, informs me that the largest and palest seeds, provided they are free from foreign seeds and dirt, yield the best oil and the largest percentage if cold drawn, and that he does not find any difference in the oils from seed grown in different climates, provided the conditions as to ripeness, size, purity and color are fulfilled.

Dr. Voelcker's analysis seems to bear out this statement, the difference in amount of oil obtained from seed in the north and south of Russia, and in England, being very slight, although the average percentage of nitrogen is less in the Russian than in the English seed.

An examination of commercial linseed will show that certain weed seeds are common to several kinds, and that such seeds cannot therefore be looked upon as distinctive of any one sort. There are, however, a few weed seeds which, being derived from plants common in one country and not in another, may be regarded as characteristic. The entire absence of a seed present in some kinds also becomes a distinguishing feature in others.

I. SMALL LINSEED.

1. *English Linseed.*—This kind is not, as might be supposed, produced in Ireland, for although that country produces much more flax than England, the flax is usually pulled before the seed is ripe, since permitting the seed to ripen is said, at all events in the Irish climate, to injure the quality of the flax. Mr. C. Umney informs me that in England flax is grown for seed chiefly in the countries of Lincoln, Cambridge, Suffolk, Devon and Somerset, that of the last two counties being of superior quality.

English linseed is, as a rule, remarkably free from weed seeds, has a greenish-brown hue, and easily yields to pressure under the fingers. The weed seeds found in it are principally a grass seed, 1, and that of *Polygonum Persicaria*, Fig. 2, a flat, black, polished seed, somewhat hollowed in the centre on one surface, and with a prominent longitudinal ridge or angle on the other. In inferior qualities, probably those from Riga, a small, yellowish, oblong, cruciferous seed occurs, Fig. 7, generally referred to *Camelina sativa*. Under a lens the radicle can easily be seen to form a longitudinal ridge at the back of the cotyledons. Another seed rarely present is that of *Chenopodium glaucum*, Fig. 4. These are lens-shaped, black and polished, but usually have a portion of their gray utricular coat attached.

2. *Dutch Linseed.*—This kind, next to the English, is the purest seed. The weed seeds found in it are almost exactly the same as those found in the English linseed, consisting of those represented at Figs. 1, 2, and 4, but the seeds of *Chenopodium album* are found in it more abundantly. The seed represented at Fig. 5 appears to be characteristic of the Dutch linseed, at least I have not observed it in the English kind. It is flattened, circular, indented on one side, brown, and is seen under a lens to be covered with minute projecting wart-like points, somewhat concentrically arranged. Some of the seeds, probably the more mature, are of a dark-gray color. Another seed, which I have not observed in the English linseed, is represented at Fig. 6. According to Professor Bernardin, flax does not appear to be grown anywhere in Belgium for the sake of its seed alone, and for sowing purposes until recently it was only allowed to enter Belgium from Riga, Libau, and Windau in sealed

* Average of 3 lots of each kind, weighed in a chemical balance. "Bold" Calcutta is intermediate (8 to 9 grains per grain) in character.

FIG. 1.—*Lolium species.* English, etc.

FIG. 3.—*Spergula arvensis*, L. Russian, etc.

FIG. 4.—*Chenopodium album*, L. Dutch.

FIG. 5.—*Silene inflata*, L. Dutch.

FIG. 2.—*Polygonum lapathifolium*, L.

FIG. 6.—Dutch.

FIG. 7.—*Camelina sativa.* Russian, etc.

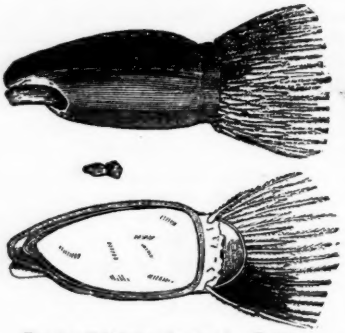

FIG. 8.—*Centaurea Cyanus*, L. Russian

FIG. 9.—*Panicum milare*, Lam.? South Russia.

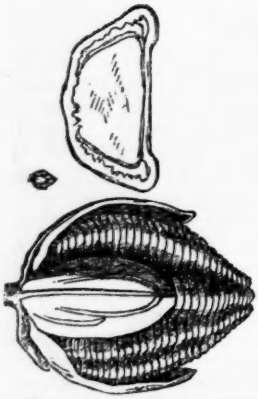

FIG. 10.—*Setaria species.* South Russia.

FIG. 11.—*Sinapis species.* South Russia.

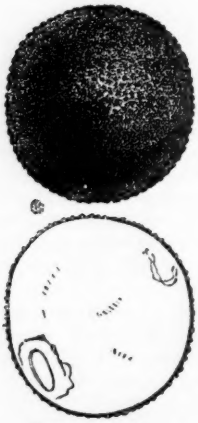

FIG. 12.—Russian.

FIG. 13.—*Agrostemma Githago.* Russian.

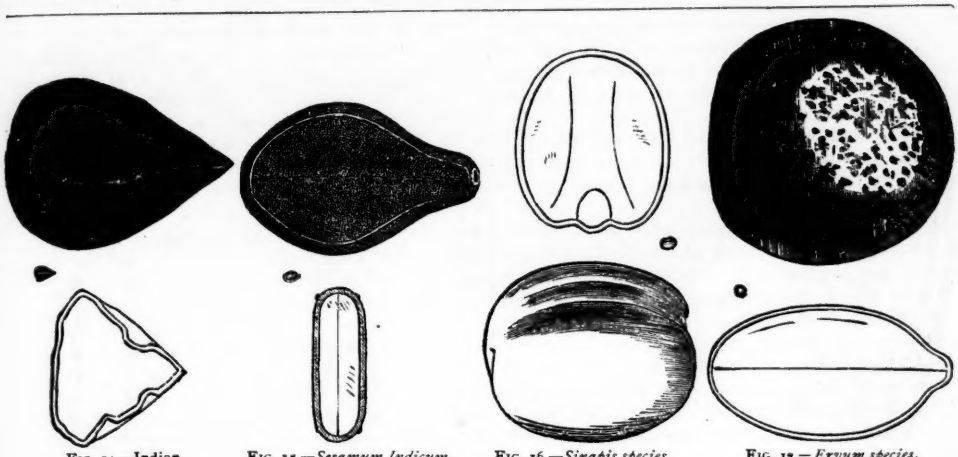

FIG. 14.—Indian.

FIG. 15.—*Sesamum Indicum.* Indian.

FIG. 16.—*Sinapis species.* Indian.

FIG. 17.—*Ervum species.* Indian.

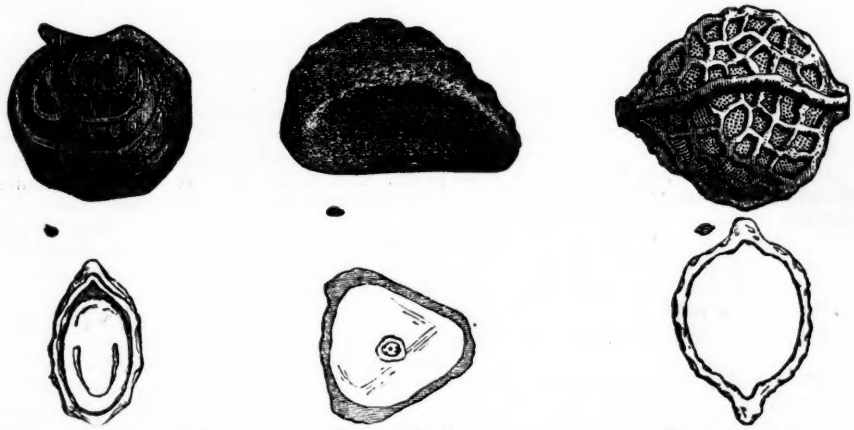

FIG. 18.—*Medicago species.* Indian.

FIG. 19.—*Catanian.*

FIG. 20.—*Catanian.*

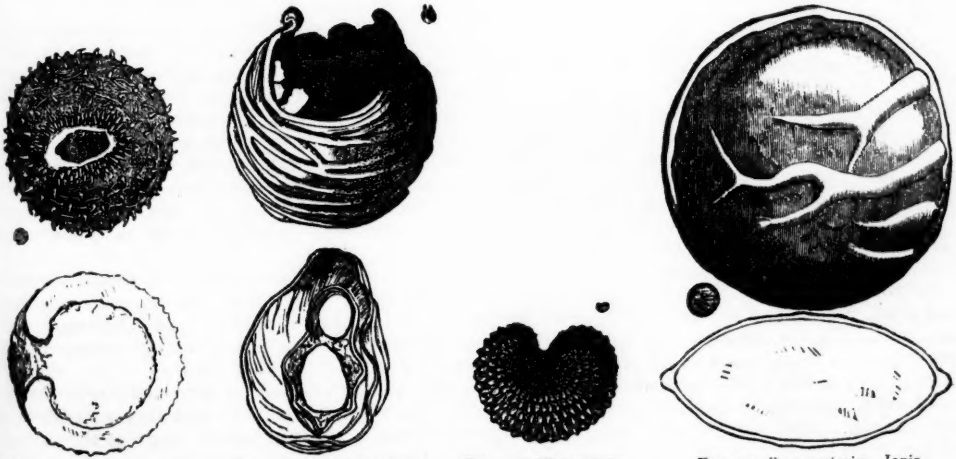

FIG. 21.—*Galium spurium.* Catanian.

FIG. 22.—*Medicago species.* Catanian.

FIG. 23.—*Silene species.* Ionian.

FIG. 24.—*Ervum species.* Ionia.

tins, with certificates from the Belgian consuls, the Riga seed being considered to yield the best flax. The first crop of flax grown from the Riga seed yields a coarse fibre, the second crop yielding the best flax.

It is probably the seed of this second crop which is sent to this country, as it does not pay to sow the home-grown seed for flax after the second crop.

On referring to the English blue books it will be observed that, although Dutch linseed is imported to England to the extent of about £70,000 yearly, yet England exports to Holland from £50,000 to £80,000 worth of linseed annually. The reason of this appears to be that East Indian and possibly some Black Sea linseed is purchased by Holland for crushing, it being fit for feeding purposes, while the Dutch yields a purer oil, and is therefore sought for in England for that reason.

3. *Baltic Linseed.*—That which is known under this name in England is chiefly received at Hull, and is imported from St. Petersburg, Revel, Riga, Libau and Windau, and Memel in Prussia, on the Russian border.

It varies much in quality and in the kind of weed seeds it contains, according to the district where it is grown.

The northern varieties, such as those grown at Archangel and Homel, are remarkable for the preponderance of the seeds of *Camelina sativa*, Fig. 7, and *Spergula arvensis*, Fig. 3. The latter seed is easily recognized by the pale prominent rim which divides it into two hemispheres, and by the dull-black, minutely rough surface, covered more or less with buff-colored scaly-like points.

The grass seed, Fig. 1, and *Polygonum Persicaria*, Fig. 2, are also of common occurrence in North Russian linseed, but are absent in that from the Baltic sea-ports. In the Lithuanian specimens that I have seen, the seed of *Centaurea Cyanus*, Fig. 8, forms a prominent feature, and one specimen from Livonia might, from its purity and freedom from weed seeds, have been taken for English.

Some of the southern varieties grown at Karatschev and Orel (sometimes spelled Orlov) resemble the northern varieties in every respect, except that they contain in addition the small grass seed represented at Fig. 9, which I have never observed in North Russian linseed.

4. *Black Sea Linseed.*—This kind comes chiefly from the ports of Taganrog and Odessa. It is remarkable for the entire absence of the grass seed, Fig. 1, and for the presence of the grass seed, Fig. 10, and of the spherical cruciferous seeds, Figs. 11, 12, of different sizes, but chiefly of a black or brownish color. Fig. 11 is brown, and Fig. 12 is black, and not a cruciferous seed. The reticulations of the former and the raised points of the latter, can only be seen under a Coddington lens.

One of the most characteristic of the weed seeds is represented at Fig. 9. This, which is the fruit of a grass, *Panicum*, is oval and convex on both sides, is remarkable for the brilliantly-polished canary-yellow or bright-brown surface of the two paleæ which inclose it. One of these is marked with three and the other with five veins. The triangular brownish seeds of *Polygonum Convolvulus*, which resemble buckwheat in shape, but are smaller and of a dull-black color when the husk falls off, and the seeds represented at Fig. 13 (*Agrostemma Githago*), are also represented in Black Sea linseed. A very characteristic seed is that of another species of grass, Fig. 10. This is of a pale-green color, flat on one side, and convex on the other, the flat side being wholly covered with a glume, and the convex side only partially so, exposing the palea beneath it, which is seen under a lens to be covered with transverse striæ, and by this feature is easily recognized.

The Turkish linseed seems to agree in character, so far as I have observed, with the Black Sea linseed.

5. *Calcutta Linseed.*—This is remarkable for the absence of the seeds so characteristic of the European linseeds, *e. g.*, those represented in Figs. 1, 2, 3, and 7. It contains numerous globular cruciferous seeds, in which character it approaches Black Sea linseed; but these are mostly of a yellow or brown tinge, and not of the prevailing black hue of those found in the South Russian varieties. The weed seeds especially characteristic of Calcutta linseed are shown at Figs. 14, 15, 16, and 17. That represented at Fig. 14, although it occurs sparingly, is very characteristic. It is triangular, of a dull-black color, having two straight sides and the third one convex, but all marked with two or three deep pits. Fig. 16 is a cruciferous, pale-yellow seed, globular, and slightly compressed, and has the radicle folded between the colyledons, its position being marked by a broad stripe along the edge of one side of the seed. Fig. 15 is the well-known gingelly, teel, or sesame seed, *Sesamum indicum*. It is flattened, dull-black, with a prominent line running along the margin, but more evident on one surface of the seed than on the other. The minute dotted markings represented in the figures are only evident under a powerful lens.

Besides the above-mentioned seeds, those represented at Fig. 17 are of frequent occurrence in Calcutta linseed. It is a leguminous, lens-shaped seed, of a greenish color, and speckled with small black dots.

Bold Calcutta Linseed is intermediate in character between the smaller and larger varieties, and contains the same weed seeds as the ordinary Calcutta linseed; but the mustard seeds are less abundant in it.

II. LARGER LINSEEDS.

6. *Bombay Linseed.*—This is distinguished from the Calcutta kind by being larger and having a brighter and more polished appearance. It contains, as a rule, fewer globular cruciferous seeds, and besides the sesame seed, Fig. 15, there occur in it the small pods of a species of *Medicago*, Fig. 18. Seeds resembling those in Fig. 10, but rather larger, also occur in it. Neither the weed seed, Fig. 14, found in Calcutta linseed, nor any European weed seeds appear to occur in Bombay linseed.

The large white or pale-yellowish linseed grown in the Nerbudda Valley is said to be remarkably free from rape seed, and to yield two per cent more oil than ordinary brown linseed, and to give it out more freely, while the resulting cake is softer and sweeter. A specimen received from the India Museum, and now in the museum of the Pharmaceutical Society, fully bears out the statement as to the purity and excellent quality of the seed, and seems admirably fitted for yielding a light-colored, pure oil for use in oil painting.

7. *Catanian Linseed* differs very little from the Ionian, except in containing rather more weed seeds. Two of these seem to be characteristic, and are represented at Figs. 19 and 20. The former is slightly angular, of a dark, reddish-brown color, and a soft outer coat, easily rubbed off between the fingers, and disclosing a horny nucleus externally of a reddish color.

Fig. 17 represents a pear-shaped, whitish seed, with a prominent ridge on two opposite sides, but more evident at the narrower end. The surface is wrinkled, but rarely forms so regular a network as represented in the specimen figured, and the dotted surface there represented can only be seen under a good lens. Other weed seeds of somewhat frequent occurrence, but which also occur in other European linseeds, are a species of *Galium*, Fig. 21, easily recognized by the central hole on the flattened side, and a species of *Medicago*, Fig. 22, and the grass seed, Fig. 1.

8. *Ionian Linseed.*—The only sample of this kind that I have examined was remarkable for its purity and large size, and much resembled the Catanian in appearance. Two of the seeds found in it appear to be characteristic, and are represented at Figs. 23 and 24. The first, Fig. 23, is a minute, brown, kidney-shaped seed, somewhat flattened, and which can only by the aid of a lens be observed to be marked with concentrically-arranged warty points. Fig. 23 is a lens-shaped seed, like a lentil, and of a yellowish color. It also contains a few of the grass seeds, Fig. 1, and some small, black caryophyllaceous seeds; but the whole of the weed seeds present are probably under one per cent.

The chemical character of the weed seeds present in the different kinds of linseed, so far as they are known, seem to point to the English, Dutch, Catanian, Ionian, and Nerbudda varieties of linseed as the best for use in pharmacy and oil painting, these kinds being most free from cruciferous seeds. The Riga seed, when properly sifted, is acknowledged to be the best for producing flax, and the other kinds are suitable only for making cake and extracting inferior qualities of linseed oil. The cruciferous seeds, unless present in large quantity, probably act only as a stimulant; in linseed cake the *Spergula arvensis* and the polygonaceous seeds contain chiefly farinaceous albumen, the former being recommended in works on agriculture as a stimulating food for poultry, while the latter are nearly allied to buckwheat, and possess probably the same nutritive properties. It must not be supposed that the weed seeds above represented are the only ones which occur in different samples of linseed; only the most characteristic and those present in the largest quantity have been noticed. Dr. Voelcker found more than twenty-five kinds of weed seeds in linseed, and Dr. T. Nobbe, in his Handbuch der Samenkunde, p. 439, gives a list of forty-one species, only eight of which, however, were present to the extent of more than one hundred per kilogram, the highest number of any one kind present being 39.51 per kilogram in linseed containing 6.91 per cent of foreign seed.

Nor must it be concluded that linseed oil owes its impurities solely to the presence of foreign weed seeds in the linseed, since resin oil and certain paraffin oils are well known to be used to adulterate it.

Atropine and Ergot as Hæmostatics.

DR. TACKE made the accidental observation that atropine can act as a hæmostatic in all cases where ergot or one of its preparations are indicated. While, in the case of ergot, an exact observance of the dose is not necessary, since only very large doses have a poisonous effect, it is different with atropine, which must, of course, be used with great caution.

Ergot and atropine, though otherwise much dissimilar, yet have a slight relationship inasmuch as they are both mydriatic. What relationship exists between this property and that of arresting bleeding must be decided by experiments in the future.

Dr. Tacke administered to a woman, suffering from a wandering eczema and who was profusely menstruating at the time, daily two hypodermic injections of 0.3 gm. (5 minims) of a 1 per cent solution of sulphate of atropine (that is, $\frac{1}{100}$ grain at a time). After the first injection already the menstruation became very moderate and normal. The same effect was produced in other menstruating females. And a very decided effect was obtained in a case of bleeding from the lungs.—DR. HAGER in *Pharm. Centralh.*, No. 27.

Medical Relations of the Commercial Adulterations of Wines and Liquors.

HENRY LEFFMANN, M.D., in the *Medical Times* of July 16th, reiterates the opinion expressed by him a year ago, that "the commercial adulterations of wines and liquors are mostly by substances that are not more harmful than the materials which they substitute, and that while much liquor is factitious, it cannot be considered more injurious than the genuine." Medically considered the circumstances under which a body is added are of no importance: the fact that it is found in the liquor makes it a commercial adulteration.

The vinous fermentation gives rise to a number of by-products, especially to related members of the simpler alcohol series—propyl, butyl, and amyl alcohol. Methyl alcohol, or wood-spirit, is not usually found. As regards propyl and butyl alcohol, our knowledge of their effects is not extensive; but their poisonous qualities are affirmed by good authorities, and they appear to have marked depressing action. Fusel oil or amyl alcohol is the great impurity of fresh liquors. Its complete removal is difficult, and its action is decided. When inhaled in concentrated form it is strikingly irritating to the fauces; when diluted with common alcohol it is more tolerable: but authorities are agreed that its effects are dangerous and prolonged.

As regards the amount in whiskeys, Cameron, of Dublin, thinks that bad samples may contain from 0.1 to 0.3 per cent.

A French authority (Dujardin-Beaumetz) has given the following as a scale of the proportion between the poisonous doses of these alcohols:

Ethyl alcohol	8
Propyl "	3.9
Butyl "	2
Amyl "	1.7

Cameron thinks the figure for amyl alcohol too great, and believes this substance to be at least fifteen times as active as ethyl alcohol.

Methyl alcohol is not a common adulteration. Its effects appear to be less serious than those of common alcohol. Richardson, in his essay on alcohol, speaks positively of the lightness and transient character of its effects, and seems to recommend its use medically. Statements of the poisonous character of its vapor have been published; but Dr. Leffmann has for some five or six years past worked in an atmosphere more or less impregnated with the vapor, and has felt no injurious effect.

Among the incidental products of fermentation and distillation are aldehyde and empyreumatic oils. Cameron, in a recent report, inclines to refer the poisonous effects of new liquors to the aldehyde rather than to the fusel oil, which is commonly supposed to be the cause. He mentions analyses in which considerable amounts of aldehyde were found, and details a case in which an aldehyde whiskey caused serious mental derangement. This impurity is removed by evaporation and oxidation, and Cameron and Thomas advise that no whiskey be allowed sold unless it is at least two years old.

The empyreumatic oil probably contains creasote-like bodies. Two or three drops are said to cause burning pain in the stomach, while more than four minims could not be borne.

The odors and some of the medicinal effects of wines especially are due to small quantities of the so-called compound ethers, which are formed by the union of an alcohol radicle with the radicle of some acid. Out of the large number of possible compounds of this class, we are concerned only with those which are formed from the common alcohols—such as methylic, ethylic, and amylic—and the common organic acids, viz.: formic, acetic, and valerianic. Nearly all the members of the group are highly volatile and strongly odorous, freely absorbed by the system, and rapidly eliminated. Their rate of absorption and elimination diminishes as the proportion of carbon increases, and the higher members of the series are like the common fats. Those which occur in wines and liquors are mostly capable of being made artificially, and are frequently so prepared, that by being added to a pure spirit a false wine can be made. The medical effects of these artificial flavors must be regarded as similar to the natural form. Considerable light has recently been thrown on the medical relations of the more common forms of these bodies by the researches of Rabuteau. He found the effects much more decided in cold-blooded animals, and ascribes this to the less rapid change and destruction of the ether in the blood. This change, Rabuteau proved by experimenting upon blood-serum, consists in the action of the alkaline salts of the blood to produce an alcohol and a sodium salt. Thus, if acetate of ethyl be introduced into an alkaline fluid, we will have ethyl alcohol and sodium acetate. The ethyl alcohol will produce its constitutional action; the sodium acetate will be converted into carbonate and removed in the urine. By properly applying these chemical points we have a clue to the medical relations of all the flavoring ethers. Their action depends on the alcohol radicle, and not on the acid present. Whatever acid is present will soon pass into carbonate, but the alcohol radicle will form its corresponding alcohol, and the effect of this will be the ultimate effect. Applying this principle, we will understand why the French experimenter found that ethyl acetate, ethyl formate, and ethyl valerianate had actions very similar, and when added to good wine did not materially modify its properties. These bodies, by the action of the blood, were changed into ethyl alcohol and sodium acetate, formate, or valerianate, as the case might be; and these three salts were rapidly changed into carbonates. When the corresponding compounds of amyl were taken, the danger-

ous amylic alcohol (fusel oil) was soon produced. It thus happens that two bodies of the same absolute composition may produce different effects. Amyl formate and methyl valerianate, for instance, have the same composition; but one will produce the volatile and rapidly eliminated wood-spirit, the other the persistent and poisonous fusel oil.

Rabuteau gives, in more or less detail, the effects of a number of these ethers; but it is not necessary to do more than indicate a few points. Two wineglassfuls (about eight ounces) of a ripe wine, to which 1.5 per cent of ethyl acetate had been added, taken during a morning, produced no special effects beyond a slightly increased tendency to affect the head. White wines usually contain this ether, and they are said to have a tendency to produce head-symptoms. The ethers formed from amyl and propyl alcohol are supposed to be especially powerful in causing the conditions and changes seen in chronic alcoholism.

Quite a long list of spurious colors, bitter and astringent principles, have been given by the writers on the chemistry of this subject.

Among the colors added to wine are logwood, red cabbage, beet-root, caramel, cochineal, and rosaniline. It is only with regard to the last-mentioned that anything special may be said. Aniline preparations are very apt to contain arsenic, and, while the color itself may have very little injurious action, the danger of arsenical contamination should justify the active prohibition of its use.

Of the bitter principles added to beer are absinthin, aloin, gentianin, and quassiin. According to some observers, absinthin is a cerebral excitant; according to others, a pure tonic. It is used in continental European practice in doses of one-half to two grains. The percentage used in beer is probably small. The medical relations of the other bitters are well known. It is doubtful whether, in the proportion in which they are used in beer, they could produce any trouble.

A number of miscellaneous adulterations may be briefly touched upon. Glycerin is employed to substitute syrup in some wines and spirits. For the purpose of giving to liquor the peculiar property of holding a bead or bubbles, a so-called bead-oil is used. One sample examined consisted apparently of fixed oil; but, as only about three-quarters of an ounce are added to forty gallons of spirit, the adulteration cannot be considered dangerous. Sugar of lead, plaster of Paris, and alum have been found in wines, but not commonly. Their presence would undoubtedly be injurious, the use of the first-mentioned being entirely improper.

In conclusion, we know that liquors prepared by strictly natural methods are not constant in composition; we know that, under the exigencies of trade, additional conditions of variations are produced, and even complete substitution brought about. Dr. Leffmann thinks that the best way to secure entire constancy in the therapeutic use of alcohol would be to have the preparations made up by regular prescription, or by printed formula in the Pharmacopœia. The substances which exist in a wine, a beer, or a brandy are an accidental mixture; some are useful, others useless. Why should we not have the useful articles properly combined by competent hands, and the useless omitted? The prejudice is in favor of the natural liquor, the opposition strong against the factitious article; but this prejudice and opposition are probably due largely to conservatism. If the use of alcoholic liquors continues much longer in medical practice, and the physiological and therapeutic effects of their ingredients become pretty fully known, we may expect that the physician, instead of ordering a special wine, will simply prescribe such proportions of alcohol, water, flavoring ethers, and astringent or bitter principles as may seem required.

On the Purity of Commercial Iodide of Potassium.—(O. KASPAR.) The method which is employed by the author to determine the percentage of pure iodide is very simple, and has the additional advantage that it is not interfered with by the presence of carbonate, bromide and chloride. It depends upon the following reaction:

$$HgCl_2 + 4KI = 2KCl + HgI_2.2KI.$$

Four molecules of iodide of potassium are, therefore, exactly decomposed by 1 molecule of corrosive sublimate, so as to form a soluble double salt. If, now, an excess of corrosive sublimate is added, the double salt is again decomposed and mercuric iodide is separated.

$$HgCl_2 + HgI_2.2KI = 2KCl + 2HgI_2.$$

As soon as this separation begins, the reaction is terminated.

The normal solution of corrosive sublimate is prepared by dissolving 2.71 grams of the salt in sufficient water and diluting to 100 cubic centimeters. 1 *cc.* of the solution, according to the above equation, indicates 0.06643 gram of iodide of potassium. When using the process, 10 grams of the iodide of potassium are dissolved in 50 grams of water, and 5 cubic centimetres of this solution are used at a time for trituration. This quantity is run into a beaker, placed on a sheet of white paper, and the above volumetric solution is allowed to flow in from a burette divided in $\frac{1}{10}$, until a permanent reddish-yellow opalescence ensues. Just before this occurs, the liquid itself assumes a reddish-yellow color, which may be regarded as a sign of the approaching end of the reaction. It is best to prepare the solution of the sublimate each time fresh.

The author has examined many commercial samples of iodide of potassium by this method and has found the percentage of the true salt to vary between 88 and 90.6 per cent. He considers that the commercial salt should contain *at least* 96 to 97 per cent of pure salt.—*Schweiz. Woch. f. Pharm.*

Lead in Bromide of Potassium.—MASCHKE has found bromide of potassium in the market which is contaminated with lead. It is soluble to a clear liquid only after addition of an acid; the larger crystals are remarkable by their transparency and their form, being a compound of octoëders and cubes. In testing for lead, sulphuric acid cannot be used here, since the resulting sulphate of lead is soluble in bromide of potassium. But if hydrosulphuric acid or sulphide of ammonium is used, no doubt can arise.—*Pharm. Zeit.*

NOTES, QUERIES AND ANSWERS.

Under this heading we shall, to the best of our ability, endeavor to answer such questions addressed to us, as come within the scope of this journal, provided they are accompanied by the name and address of the writer. Answers to queries received after the 5th of the month will lie over until the next issue. Unless special instructions to the contrary accompany the query, the initials of the correspondent will be quoted at the head of each answer.

When asking for the formula of an unusual, patented, or proprietary compound, always accompany the query with any information you may already possess regarding the locality in which it is used, its use and reputed effects, in order to enable us to make inquiry without waste of time and labor. When it can conveniently be done, send also a specimen of the label used on packages of the compound.

No. 946.—**Mucilage for Stamps** (C. N. R., Phila.).

Dextrin is employed for this purpose. That used by the Government is furnished by a manufacturer on Long Island, who does not appear inclined to communicate the details of the process. His address may be learned of the American Bank Note Company, New York.

No. 947.—**Emulsion of Cod-Liver Oil** (E. M. W. & Co.).

Thanks for the correction! The formula of *Emulsion of Cod-Liver Oil* printed on page 371 of our last volume (December, 1880), should read as follows:

Cod-Liver oil	4	fl. ℥ (Imper. M.)
Powdered acacia	1	℥ (avoird.)
Essential oil of almonds	4	♏
Syrup	1	fl. ℥ (Imper. M.)
Water	to 8	fl. ℥ (Imper. M.)

Mix the gum with the oil, then place on the mixture 2 ounces of water, and stir until the emulsion is formed; then add the remainder: water, essence, and syrup.

No. 948.—**Explosive Prescription** (G. H. K.).

We have the following letter from a practising physician:

"The following prescription is often used by me in cases of diphtheria and in irritation of the throat from other causes:

℞ Potassii chloratis,
Acaciæ,
Sacchari albi ..... āā ℥ ss. Misce.

"Will you please give your opinion whether this mixture ought to be classed among the explosive ones, and whether it would be dangerous, in any way, in *bulk;* also, whether it is necessary to direct the druggist to mix the ingredients with a wooden spatula, etc.?"

As a matter of principle, we consider it dangerous and unwise for any physician to prescribe any dry mixture containing chlorate of potassium in powder. True, there may be many mixtures which contain ingredients directly neutralizing or preventing any tendency to explosion; but how many prescribers are there who are sufficiently familiar with chemistry to know beforehand the effects which may be produced, or the accidental circumstances to which the mixture may become exposed? As it happens, the above mixture is not very likely to explode, under ordinary circumstances, provided the powdered acacia has first been thoroughly mixed with the sugar. But, if the powdered acacia was thoroughly dry (which it generally is not), a strong blow or energetic friction may set it off. It certainly would indicate a proper interest in the welfare of the pharmacist, if the physician would add cautionary remarks—such as "do not triturate forcibly," or "mix gently, with a wooden spatula"—not so much because the pharmacist may not be aware of the danger, but because accidents of this kind arise generally from carelessness and inattention. The safest way to avoid all risks is to prescribe the chlorate of potassium either in solution or, if it is to be delivered dry, to order it put up in a separate package, with proper directions how to dissolve it.

No. 949.—**An Interesting Prescription** (A. B. H.).

"The following prescription was handed me the other day:

℞ Chloral hydrat	.....	℥ iiss.
Potass. bromidi	.....	℥ iv.
Elixir. simpl	.....	ad fl. ℥ ij.

"Sig. One teaspoonful every six or eight hours. It was prepared by dissolving the chloral and bromide, mixed together, in the elixir. After standing a few moments, the solution being perfect, a separation took place. The lower four-fifths of the vial was occupied by a perfectly clear, colorless liquid, and the other one-fifth by a clear, pale-yellow, or straw-colored liquid, the two separated by a thin, whitish film. By agitation an apparent union takes place, followed very shortly by a separation, that while going on has the appearance of some mixtures that contain chloroform.

"The same mixture was again prepared, the salts being dissolved separately, and the two solutions then mixed, yet the same result followed. Judging by taste and smell the chloral seems to be almost entirely contained in the upper liquid, and the bromide in the lower.

"The simple elixir is a mixture of alcohol about one part, water two parts, and sugar one and one-fifth parts, flavored with some essential oils. Can you give me an explanation of the occurrence?" H.

We have made some experiments with the above mixture, and for the present have to offer the following explanation:

Under ordinary circumstances, when an alcoholic solution and a watery solution are mixed together, the alcohol and water coalesce or unite together, thereby producing a new solvent which, in many cases, will be unable to hold in solution what each menstruum for itself had contained. Thus, for instance, if an aqueous solution of potassium bromide be mixed with an alcoholic solution of camphor, say equal parts by volume, there will be a separation both of camphor and of potassium bromide (if the solution was concentrated), because the alcohol and water have combined, and the new menstruum is too aqueous to retain all the camphor, and too alcoholic to retain all the bromide. It appears, however, that there may be certain conditions under which a sort of equilibrium is established between the two solutions, in so far, that each menstruum rather prefers to retain in solution certain substances, than to unite with another menstruum. At all events, in the mixture under discussion, there are formed two layers, the upper one considerably smaller than the lower, both of them sharply defined, and sometimes separated by a thin film of flocculent matter. The lower layer is almost entirely aqueous, containing most of the bromide and sugar in solution, but has, nevertheless, a taste of chloral and also contains a little alcohol. The upper layer contains the chloral, essential oil, a trifle of bromide and sugar, and alcohol. Each solution is nearly saturated, and on shaking them together they form a somewhat milky mixture, which, on standing, again separates into two layers. There is very little separation of crystalline bromide in the lower layer. As soon as the proportions are disturbed, however, the result becomes different. For instance, on adding more alcohol, and shaking, the menstrua unite, and a good deal of the bromide, which is now no longer soluble, separates, while all the rest forms a clear, homogeneous solution. Addition of water, instead of alcohol, produces a clear, uniform solution at once, provided enough was added. If the upper alcoholic solution is removed and filtered, and then mixed with water, *drop* by *drop*, it will be noticed that each drop produces an opalescence which disappears on shaking. In this way the alcoholic solution may be diluted with water without ever becoming permanently cloudy. But, if the alcoholic solution be mixed *at once* with a quantity of water—say equal volumes of each, or two of water to one

of the other—the mixture will separate heavy drops of an oily matter, which require the addition of more water and considerable shaking to bring into clear solution. This separation of drops appears to us to be a separation of absolute chloral (?) from the solution which may contain the latter possibly in form of *alcoholate*. And the free chloral, particularly when in bulk or quantity, requires a little time to be converted into hydrate of chloral. It seems to us that it would repay some one who has some leisure at his hands to make this interesting point a matter of careful investigation.

No. 950.—**Elixir of Calisaya** (S. J. C.).

We published the following formula on page 310 of our volume for 1880:

Tincture of orange peel	fl. oz.	2
Oil of orange	♏	15
Oil of cassia	♏	8
Oil of anise	♏	8
Oil of coriander	♏	8
Oil of nutmeg	♏	4
Oil of rose	♏	4
Extract of vanilla	fl. oz.	2
Syrup	fl. oz.	50
Alcohol	fl. oz.	31
Citric acid	grs.	20
Sulphate of quinia	grs.	130
Sulphate of cinchonia	grs.	65
Phosphate of calcium	q. s.	
Caramel	♏	10
Water	q. s. to make gall.	1

The tincture of orange peel is prepared by percolating 8 ℥ of fresh orange peel with alcohol, to make 1 pint. The sulphate of quinia and cinchonia, together with the citric acid, may be dissolved in a mixture of 10 oz. of alcohol and 10 oz. of water, with the aid of a gentle heat. The oils and the tincture of orange peel are added to 16 fl. oz. of the alcohol; to this is added the syrup and 25 fl. oz. of water; a small quantity of this is triturated in a mortar with about 2 oz. of phosphate of calcium, and the resulting milky mixture intimately mixed with the remainder of the liquid, which is then filtered through a wetted filter. The filter is washed with a mixture composed of the remainder of the alcohol (5 fl. oz.) and 10 fl. oz. of water. To the filtered liquid is added first the solution of the alkaloids, then the extract of vanilla and caramel, and finally enough water to make one gallon.

A very much more simple formula would be the following:

Fl. ext. cinchona	1	fl. oz.
Citric acid	120	grs.
Simple elixir	15	fl. oz.

Mix, let stand for some days, and filter.

No. 951.—**Incompatible Prescription** (I. A. A.).

This correspondent writes: "In filling the following prescription:

℞ Liq. potassii arsenitis	fl.	℥ iss.	
Potassii acetatis,			
Quiniæ sulphatis	āā	℥ iss.	
Acidi sulph. aromat.	fl.	℥ ss.	
Aquæ	fl.	℥ iv.	M.

Sig. ℥ ter in die (before meals).

I was unable to dissolve the quinia in the half-drachm of acid. Now was the trouble in insufficient acidification of the quinia, or was there not enough acid to properly bring the quinia in solution? The acid I know was of good quality, having carefully prepared it myself."

The quantity of aromatic sulphuric acid which the prescription directs is not enough to completely dissolve the sulphate of quinia. The reason why sulphuric acid dissolves the sulphate of quinia is this, that the *neutral* salt, which is but sparingly soluble, is converted into the *acid* salt, which is very readily soluble. In order to do this, an amount of sulphuric acid is required which is *at least* equal to that already present in the neutral quinia salt. Now, 90 grains of officinal sulphate of quinia ($2C_{20}H_{24}N_2O_2.H_2SO_4.7H_2O$—Mol. W. 872) contain 9.9, or short, 10 grains of real sulphuric acid (H_2SO_4). Hence, at least 10 grains more of the latter must be added to dissolve it. The aromatic sulphuric acid of the present pharmacopœia contains about 84 grains of officinal sulphuric acid (spec. grav. 1.843) in 1 fluid ounce, which is equivalent to about 81 grains of real acid (H_2SO_4). Hence, ½ fluid drachm of the aromatic sulphuric acid contains only about 5 grains of real acid; that is, only about *half the quantity* required.

But there is another trouble connected with the prescription. The sulphuric acid, which is added, will decompose the acetate of potassium, forming sulphate of potassium, most of which will precipitate, while a corresponding quantity of acetic acid will separate. But the latter is incapable of dissolving as much of the sulphate as the sulphuric acid did, and hence, even though the whole of the quinine had been brought into solution by the addition of more sulphuric acid, as soon as acetate of potassium is added, some of the sulphate of quinia will separate again together with the sulphate of potassium. Besides, the arsenious acid in the Fowler's solution may also precipitate in some of these decompositions, though perhaps only to a very small extent. The prescription is clearly incompatible.

No. 952.—**Syrup of Hydriodic Acid** (A. C. N.).

There are various strengths of this syrup in the market. That which is perhaps the most commonly used contains 6.66 grs. of iodine in the fluid ounce.

A syrup of this strength may be prepared in the following manner:

Take of:

Iodide of potassium	280	grains.
Tartaric acid	260	"
Distilled water	q. s.	
Syrup	q. s. ad 32	fl. oz.

Dissolve the iodide of potassium and tartaric acid, each separately, in 1 fl. oz. of cold distilled water, mix the two solutions, and set them aside in a very cold place for 24 hours. Then transfer the mixture of liquid and crystals to a filter, and when the liquid has drained off, wash the crystals with a little ice-cold distilled water, and bring the filtrate to the volume of 4 fl. oz. by the addition of more distilled water. Mix this with the syrup, and preserve the product in well-closed vials.

No. 953.—**Loomis' Compound Tincture of Quinine** (L. E. C.).

We are informed by some of our friends that the following is the formula:

R Quiniæ sulphatis	grs.	80
Tinct. aurantii cort.	fl. ℥	10

Mix and digest for seven days.

Prof. A. L. Loomis, M.D., is also credited with another tonic combination, which is largely used in Bellevue and Charity Hospitals, New York, under the name *Loomis' Tonic*, and which is prepared after the following formula:

R Quiniæ sulphatis	grs.	30
Acidi sulph. dil.	q. s.	
Tinct. ferri chlor.	fl. ℥	½
Spir. chloroformi	fl. ℥	6
Aquæ	fl. ℥	2
Glycerini	q. s. ad fl. ℥	4

Mix. Dose: a teaspoonful.

To make Labels Adhere to Tin.—To the various methods heretofore mentioned by us, the following may be added:

1. Soften good glue in water, then boil it with strong vinegar, and thicken the liquid, during boiling, with fine wheat-flour, so that a paste results.

2. Starch-paste, with which a little Venice turpentine has been incorporated while it was warm (E. Bombelon).

3. Paint solution of tannin over the spot, let dry, and then affix the label previously gummed and moistened (Leuken).—*Pharm. Zeit.* (See also above, p. 293.)

FORMULAS.

Colorless Tincture of Iodine.—The mention of the German Pharmacopœia formula which contains hyposulphite of sodium may induce some dispenser to attempt the extemporaneous preparation of this application by the use of hyposulphite alone. Tincture of iodine treated with about 5 per cent of this salt will be decolorized almost immediately, to the satisfaction of the operator; but, in the course of a day or two the compound will develop into an abominable mess, of which precipitated sulphur and sulphuretted hydrogen will be the most evident constituents. It is not generally known how small a proportion of ammonia is necessary to produce a colorless solution of iodine, if sufficient time be allowed for the combination to be effected. About 2 fluid drachms of liq. ammon. fort. suffices for 4 fluid ounces of tinct. iodi. B.P., and 2 drachms of iodine dissolved in 3 fluid ounces of spirit are decolorized by the same quantity. These preparations have but a faint smell of free ammonia, and are unchangeable.

Preparation of a Clear Solution of Caoutchouc.—Dr. Eder and V. Tóth give the following directions: Inclose 30 grams of finely cut caoutchouc in a capacious linen bag, and suspend this within a flask containing 1 liter of benzine, by means of a thread held fast by the stopper so that the bag remains near the surface of the liquid. In the course of six or eight days the soluble portion of the caoutchouc, about 40 to 60 per cent, will pass into the benzine, while the contents of the bag will swell to an enormous size. The clear limpid solution, which is quite viscous and contains 1.2 to 1.5 per cent of caoutchouc, is then carefully separated. The swelled contents of the bag retain ¼ to ½ of the benzine used, and may be utilized for the preparation of an inferior grade of caoutchouc varnish. The authors also state that a solution of caoutchouc in benzine, kept in half-full bottles, is decomposed on exposure to light, which may be seen by the change of the solution from a viscous to a thin-fluid condition. Even in the dark this change goes on, but it requires about three times as much time.

Simmons' Liver Regulator.—A correspondent of the *Medical and Surgical Reporter* says the following, found in a druggist's private recipe-book, corresponds with his recollection when living in the same village with Dr. M. A. Simmons.

℞ Pulv. sennæ comp	℥ ij.
Serpentaria root	℥ ij.
Golden seal root	℥ i.
Manna	℥ i.

Startin's Mixture.—For reducing cutaneous congestion in the erythemata, urticaria, etc.:

Sulphate of iron	1 part.
Sulphate of magnesium,	
Tincture of gentian, of each	8 parts.
Dilute sulphuric acid	2 "
Water	24 "

A teaspoonful to be taken after eating.

Fruit Flavorings.—I give instructions by which all confectioners may extract their own fruit essences, and so guard the health and add to the pleasure of all for whom they provide. Among the juicy fruits are strawberries, raspberries, blackberries, cherries, and currants; among non-juicy fruits are the apple, pears, peaches, quinces, apricots, and plums.

Mash the juicy fruits in a basin to a pulp. Place on the fire and make scalding hot. Now pour into a hair sieve and allow the juice to strain through. Put into bottles and securely tie down. Place these bottles in a cauldron of cold water, heat and boil for twenty minutes. Remove from the fire and allow to remain in the cauldron until cold. Then set away for use.

In the case of non-juicy fruits, such as apples, pears, peaches, etc., put the fruit into a basin. Cover with water and boil to a pulp. Now place on a hair sieve and allow to drain without any pressing. Observe now that it is only the liquor which passes through the sieve without pressing which is to be used for flavoring purposes. What remains in the form of pulp is not adapted for these uses. Now put the juice obtained as above into bottles, and proceed to treat as already laid down for the juicy fruits.

The foregoing processes are to be gone through with in the case where the extracts are to be kept transparent and clear, as for syrups, cordials, and beverages.

In case where the flavorings are to be used for any purpose where transparency or clearness is not desirable, such as for ice creams, fruit ices, or bonbons, then I would use not only the clear fluid, but the pulp of the fruit also. I would for these opaque purposes save and utilize everything of the fruit except the skins and seeds. This pulp is to be treated as already laid down.

As thus obtained and preserved our confectioners can supply themselves with a quantity of perfectly pure extracts of their favorite fruits, and which can always be at hand for flavoring every description of pastry, cakes, pies, tarts, puddings, creams, ices, and beverages, and at any season of the year. Especially when there is any one in the house who is sick or feverish, cordials may be flavored with these delightful sub-acids—these remedies and restoratives of kind mother nature herself—such as will shoot through all the veins of the most debilitated and infirm the most delicious sensations of happiness and hope.—James W. Parkinson, in *Confectioners' Journal.*

Eau de Cologne Soap.—From a German soap makers' journal we take the following recipe:

White castile soap	2,000 parts.
Oil of lemon	8 "
" neroli	4 "
" sweet orange	6 "
" rosemary	1 part.
" thyme	1 "
" petit grain	2 parts.
Essence of civet (30 gm. of civet to 1 liter of alcohol)	4 "

Petroleum Soap.—L. Bastil, a French chemist, has obtained a patent for a petroleum soap in which equal proportions of animal or vegetable fats are used with petroleum. The fatty matter is melted and a small quantity of boracic acid is fused into it A similar quantity of boracic acid is in like manner added to the mineral oil at the temperature of 90° Fahrenheit. The chemist also dissolves a similar quantity, one-half per cent, of boracic acid in his alkaline solution. The partially acidified animal or vegetable fat and the mineral oil are mixed by gradually pouring the melted animal or vegetable fat into the mineral oil and constantly stirring or agitating. He then gradually adds the alkali containing the boracic acid, while still maintaining the agitation. The saponification is completed by further addition of as much ordinary alkaline solution as may be required, and finishing off pretty nearly in the usual manner.

Advantages of Ergot Deprived of Oil.—Hermann Werner and several other correspondents of the *Pharm. Zeit.* draw attention to the superior activity and stability of powdered ergot which has been deprived of the fatty oil. This fact has been repeatedly noticed in former years, but, as it was denied by others, it did not find universal belief. For the last five years, Gehe & Co., of Dresden, keep regularly in stock "powdered ergot deprived of oil," and the author states that he has never met with a case in which the powder deprived of oil failed to act, though it had become two years old and over. He prepares it himself by exhausting coarsely powdered ergot with petroleum ether. The amount of oil extracted amounts to about 25 per cent.

PHARMACEUTICAL ASSOCIATIONS.

Fifth International Pharmaceutical Congress.

THE Fifth Congress of Pharmacists was convened at the house of the Pharmaceutical Society, 17 Bloomsbury Square, London, England, on the 1st of August. About sixty delegates from various countries were present, two only, Hoffmann and Oldberg, of New York, representing this country. The President of the Pharmaceutical Society of Great Britain (Mr. T. Greenish) presided at the opening of the session and Mr. Theophilus Redwood, of London, was subsequently elected President of the Congress. The Executive Committee which had managed the work preliminary to the meeting was made the Executive Committee of the Congress, and Mr. R. Bremridge the General Secretary.

During the session the papers read related to the questions previously announced in our columns. These and the discussions thereon as reported by the *Pharmaceutical Journal* are here reproduced.

INTERNATIONAL PHARMACOPŒIA.

By JOSEPH DITTRICH (Prague).—The idea of a Universal or International Pharmacopœia was suggested at the First International Congress in Brunswick, in 1865 (see the Report of that Congress, p. 5, iv.). The Second Congress, in Paris, in 1867, made a definite proposition in this respect (see Rapport, p. 87, deuxième question). At the Third Congress, in Vienna, in 1869, a communication was made to the effect that a Commission of the Société de Pharmacie de Paris was occupied with the drawing up of a universal codex, and a wish was expressed by the Congress for a speedy completion of this work. At the Fourth Congress, in St. Petersburg, the same subject was included in the programme, and resolutions as to principles, which on the whole were suitable, were prepared in a more definite form. It is unfortunate that during these fifteen years no material result has yet been attained, and that the subject has been simply put aside from year to year and from Congress to Congress. The unification of the Pharmacopœa Germanica, which has been effected meanwhile, furnishes, however, a proof that such international co-operation is possible.

Although Great Britain did not take part in the First and Second International Congresses, her representatives voted in favor of an International Pharmacopœia at the Third and Fourth Congresses. Without doubt the French have been the most active in this direction, and they submitted a detailed scheme to the Congress in St. Petersburg. This material was intrusted for working out to a Commission of pharmacists, who sent the results of their labors within a reasonable time to the Pharmaceutical Society in St. Petersburg. From that time no further progress has been made. It is for the last-named Society to furnish reasons for this.

I must here remark that the pharmacists of Russia were themselves always prepossessed with the idea of an International Pharmacopœia. It is a fact, nevertheless, that through this inactivity seven years have been lost. But during that period it was at least possible that a concise International Pharmacopœia, limited to those preparations which are used throughout the civilized world, might have been prepared. The Russo-Turkish War is not to be regarded as sufficient to have prevented undertakings of a generally useful and scientific character. As proof of this the French, also engaged in warfare, nevertheless continued to work upon the drawing up of the *Codex universel*. Similar conferences on postal, railway, customs and monetary affairs were not neglected. The Commission in St. Petersburg might therefore at least have commenced its labors, and laid before the London Congress some definite scheme.

Before leaving the history of this question to enter upon the subject itself, mention must be made of the manner in which the Pharmacopœa Germanica originated. A scheme, worked out by nine pharmacists of North and South Germany and Austria, was laid before the Brunswick Congress in 1865, and being sanctioned by that body, the cost of printing was covered by subscriptions. The discussion of that scheme by a Commission appointed by the Bundesrath, led, in seven years, to the authoritative replacement of the numerous State pharmacopœias by the "Pharmacopœa Germanica, 1872," which is now binding upon the whole of Germany. The Pharmacopœa Germanica is richer in materia medica than that of Austria, and it is officially referred to in the case of articles wanting in the latter.

A similar proceeding should, in my opinion, be observed in the construction of an International Pharmacopœia, and the following propositions might be recommended to the consideration of the Fifth Congress in London:—

(1). That the resolutions of the Congress in St. Petersburg in 1874 should be generally confirmed (see *Zeitschrift d. allg. österreichischen Apotheker-Vereins*, 1874, p. 548, question iv., 1–6).*

(2). That for elaborating the scheme of an International Pharmacopœia a Commission of at most nine prominent practical pharmacists should be appointed.

(3). The principles laid down by the St. Petersburg Congress (1874) should be acted upon as far as possible. Further the work should be limited to the most important potent crude drugs and to those powerful compounded preparations which are in universal use and must be kept. In regard to the latter, smaller doses should be recommended, and the average strength should be in accord with the pharmacopœias of the larger States. For galenical preparations an exactly uniform method of preparation might be observed.

(4). This scheme should be printed, and further carried out according to the resolutions of the St. Petersburg Congress, concerning Question IV. It is self-evident that the Pharmaceutical Society of Great Britain should occupy henceforth the place of the Pharmaceutical Society of St. Petersburg.

This Commission should select from among its members a President and Vice-President. It must comprise repre-

* Resolutions passed at the Fourth International Pharmaceutical Congress at St. Petersburg:—

"(1). The Fourth International Pharmaceutical Congress considers the time has come for establishing an International Pharmacopœia.

"(2). It also desires to thank the Pharmaceutical Society of Paris for the attempt to carry out that project.

"(3). The Congress will appoint a Committee to consider the French draft, and eventually draw up a new Pharmacopœia. The location of this Committee is to be St. Petersburg. The work of the Committee is to be transmitted to St. Petersburg at latest by the 1st of December next (o. s.) The Pharmacopœia projected by the Committee is to be submitted to the consideration of all the larger Pharmaceutical Societies. The cost of printing is to be defrayed by the Pharmaceutical Societies engaged in the undertaking.

"(4). The International Pharmacopœia, as projected by this Committee and approved by the Pharmaceutical Societies, is to be transmitted to the Russian Government through the Pharmaceutical Society of St. Petersburg, for the purpose of being forwarded to the Governments of other countries, through their diplomatic agents. Those states are to appoint a Committee by which the adoption of the scheme is to be authorized, or by some other means the adoption of an International Pharmacopœia is to be carried out.

"(5). The International Pharmacopœia is not to supersede National Pharmacopœias, but it is essentially desirable that in construction of the latter the fundamental principles of the International Pharmacopœia should be adopted.

"(6). Without anticipating the labors of the Commission, it is the desire of the Fourth International Pharmaceutical Congress that the following points should be borne in mind in the construction of an International Pharmacopœia:—

"(*a*). That the language of the Pharmacopœia should be Latin, as decided at the Congresses at Paris and Vienna.

"(*b*). That the metric system shall be adopted in the formulæ of preparations.

"(*c*). The nomenclature is as far as possible to be uniform.

"(*d*) With ordinary drugs only the names to be given.

"(*e*). With potent drugs the minimum amount of active substance is to be mentioned.

"(*f*). Galenical preparations, such as tinctures, extracts, etc., should be made as nearly uniform as possible.

"(*g*). The maximum admissible amount of impurity in chemical preparations is to be stated."

sentatives of natural history, especially botany, general chemistry, and analytical and pharmaceutical chemistry, pharmacognosy and pharmacy.

The material gathered at St. Petersburg relative to this question, should be handed over to the Commission. The work should be appropriately divided among the members of the Commission, and these, after the completion of their labors, should be required to meet together for the final arrangements in a favorably situated city, possessing means for literary assistance.

In the event of the death or resignation of one of the members of the Commission, it should be for the executive bodies of the principal pharmaceutical societies in the larger States to select a substitute.

In cases of necessity the Commission should be required to communicate with the President of the London Congress (1881) in writing.

The consideration of the addition of new and at present unknown or unused drugs should be postponed to a future Congress.

The cost of the printing of the scheme should be defrayed proportionally by the pharmaceutical societies and associations, and these could be more or less repaid by subscriptions from their members and others.

The resolutions of the First International Congress in Brunswick, in 1865, were at its conclusion communicated by the President to the Governments of all the States that were represented at the Congress. Whether this was also done after the three following Congresses I do not know, but a similar course should be taken at the close of the present Congress in London.

I desire and hope that the Fifth Congress in London will finally perform what was not accomplished by its predecessors.

INTERNATIONAL PHARMACOPŒIA.

By I. MARTENSON (St. Petersburg).—The necessity for an International Pharmacopœia has been repeatedly demonstrated at pharmaceutical and medical congresses, and at the Fourth International Pharmaceutical Congress, held in St. Petersburg, various preliminaries to the production of such a work were settled. The same question has also been introduced into the programme of the Fifth International Pharmaceutical Congress now being held in London.

The realization of an International Pharmacopœia is certainly a very difficult problem, and it cannot be achieved by medical or pharmaceutical associations alone, much less by isolated individuals, but only with State assistance. At any rate the measures planned at the Congress at St. Petersburg have not proved to be suitable for the purpose. It was intended first to draw up the Pharmacopœia and then to procure the necessary State recognition. Even in the preparation of the material for that purpose the Commission experienced difficulties, since from various motives, among which a feeling of jealousy was not unrecognizable, the several members of the Congress would not consent to alteration of their individual views or of the formula proposed by them.

Moreover the absence from the Fourth International Pharmaceutical Congress of any representatives of countries so important as Germany and America left perceptible gaps in a labor so universal.

In my opinion an International Pharmacopœia could very probably be called into existence, provided it be attempted in somewhat the following way.

The Fifth International Pharmaceutical Congress in London might take the subject into consideration and eventually resolve:—

(1). To lay before the Governments of the several States concerned the necessity for an International Pharmacopœia.

(2). To submit to them a request to send at least one representative to a Commission at their expense.

(3). To appoint a "Commission for the drawing up of an International Pharmacopœia," consisting of representatives of pharmaceutical societies in the several countries. In that Commission the smaller States should be allowed to be represented by foreign commissioners. The conclusions of the Commission to be binding upon the several countries.

(4). Members and Presidents of this Commission could suitably be selected at once by the Congress, as well as the place of meeting, which should be as central as possible.

(5). The Commission to have power to obtain further assistance in the work.

(6). A plan for the construction of the International Pharmacopœia must first be drawn up and communicated to the pharmaceutical societies of the several countries for their approbation.

(7). That after the final construction of the Pharmacopœia the Commission should cause the issue of a sufficient number of copies, possibly in the Latin language, to be sent to the several Governments, after which each country can have printed as many impressions as it may require.

An International Pharmacopœia cannot, in my opinion, be a work of the nature of a Universal Pharmacopœia, its contents could be but limited. Besides the International Pharmacopœia, the several countries would preserve their national Pharmacopœias with all their peculiarities. Very much would be accomplished if a unanimous international decision could be arrived at as to the strength, composition, nomenclature, etc., of the more important forms of medicines used in all parts of the world. It might be, indeed, quite unimportant, whether the formula for a cerate in a northern country differed from that of a southern country; or whether the characters of sugar, collodion, etc., were somewhat different. But if it would be advantageous if certain potent tinctures, solutions, acids, etc., were made of equal strength and uniform quality in all countries, and if they bore the same designations. If a Pharmacopœia of this kind, however modest in its character at first, should actually become internationally naturalized, it would not want either for friends or for future development on a broader basis.

THE EQUALIZATION OF THE STRENGTH OF OFFICIAL PHARMACEUTICAL PREPARATIONS CONTAINING POTENT DRUGS.

By PETER SQUIRE (London).—The dangerous differences which existed between the three pharmacopœias of London, Edinburgh, and Dublin paved the way for the British Pharmacopœia, and the advantages which have resulted from the change have fully justified the idea of superseding the former conditions of local self-government in medicine, by one uniform guide and standard applicable to the whole British Empire. A similar experience has been gained by the substitution of the 'Pharmacopœa Germanica' in place of the pharmacopœias previously used for several states of the German Confederation. So likewise in Switzerland and the United States respectively, there is but one national pharmacopœia. And for some years past the idea has been gaining strength that it is becoming desirable to extend this principle to the pharmacopœias of various countries, at least so far as to attain international uniformity in the strength and composition of certain medicines.

Among the reasons that may be adduced in favor of such a proceeding, it may be mentioned that many persons now travel, not only for business or pleasure, but also for health. Now, from a glance at the accompanying tables (see pp. 308 to 310), furnishing a comparison of the strength, etc., of certain preparations universally used, and common to most, if not all, pharmacopœias, it will be evident that medicine dispensed according to a prescription ordering any one of those preparations would possibly vary very much in character according to the country in which it was obtained by the patient. The present may be regarded as a favorable time for the consideration of this subject, since new editions of some of the pharmacopœias are being prepared. For some years past, moreover, there has been a strong desire for uniformity. In

addition to differences in strength, which are greatest of all in tincture of cantharides, the formulæ often vary by ordering different materials to be used, as in the case of tincture of aconite, for which either the root, the dried herb or leaves, and in some instances the fresh herb are ordered. The same remark applies to tincture of belladonna. It is to be noticed that in the preparations of opium the pharmacopœias of France and Belgium have in several editions ordered the extract of opium to be used in making the tincture. They have also substituted extract of opium for powdered opium in the very old formula for Dover's powder, thus making it of double strength, as in the present 'Pharmacopée Française.' A comparison of the formula in the Pharmacopœia Gallica of 1818 with that in the Universal Pharmacopœia, published by Swediaur in 1803, will show how this has occurred. The last-named work was the source from which the formula was stated to have been taken for the Pharmacopœa Gallica, although extract of opium is ordered in place of the opium powder of the original.

SWEDIAUR, 1803.	PHARM. GALLICA, 1818.
PULV. SUDORIFICUS (DOVERI).	PULVIS EX IPECACUANHA ET OPIO COMPOSITUS, DICTUS DOVERI.
℞. Nitratis potassæ, Sulfatis potassæ, ana uncias quatuor.	℞. Sulfatis potassæ, . 4 Nitratis potassæ, . 4
Simul in pulverem tenuem trita immitantur in crucibulum, ut igne liquescant; massæ dein in mortarium ferreum effusæ et pene refrigeratæ adjice primo	Simul trita conjiciantur in crucibulum ut igne liquentur. Massæ dein in mortarium ferreum effusæ et pene refrigeratæ adjice
Opii siccati pulv. unciam unam.	*Extracti opii siccissimi in pulverem redacti* 1.
Dein post triturationem adde	Hisque simul tritis adde demum
Radicis Psycothriæ emeticæ pulv. unciam unam.	Radicis ipecacuanhæ (Cephaëlis emetica) 1. Glycyrrhizæ (Glycyrrhiza glabra) 1.
Tere in pulverem tenuissimum.	Terantur omnia in pulverem tenuissimum.

The formula having been copied and the reference given, it is difficult to account for this alteration of one of the most important ingredients, except as having been an oversight. Still, it may be asked whether the French and Belgians, after being familiar with this strength, would be content to alter it to one-half; or whether in other countries the pharmacopœia authorities would of their own accord double the strength of this preparation. In similar cases of large differences in the strength of certain preparations the same difficulty would present itself, more especially if the pharmacopœia authorities of individual countries should take the same view as those of the United States, that it is unwise to alter the strength of their highly active medicines. It is to be noticed that very many of the tinctures of various pharmacopœias are made of the strength one in five, and, therefore, it is not surprising to find that in the majority of the pharmacopœias some of the tinctures in common use contain the same proportion of active ingredient. But it also happens that some tinctures which are one in five according to some pharmacopœias are one in ten according to others, and the reverse.

Strictly speaking, to have uniformity, not only should the proportions be identical, but the process, as well as the strength of the spirit used, ought to be the same. At present some pharmacopœias direct maceration, pressing, and filtering: others direct percolation, and making up the product with spirit to the original volume; others direct percolation till the full quantity has passed through; others again direct making up the ascertained loss during maceration, and then pressing and filtering.

As regards solutions of arsenic and the alkaloids, a strength of 1 per cent would closely accord with the solutions of arsenic now in use in all countries, and that would be a good strength for solutions of the salts of atropia, morphia, and other alkaloids, if it should be deemed advisable to include solutions like these in a pharmacœpia. Such solutions are constantly prescribed in Great Britain, but they have not found much favor in other pharmacopœias.

At first sight it would seem far easier to assimilate pharmacopœias of continental Europe than those of Great Britain and of the United States, because of the difference in the usage of the two countries in regard to weighing and measuring, and also because of the difference between the weights and measures of those countries. In the United States liquid acids and oils are weighed, but all other liquids are measured as in England. When the British Pharmacœpia was introduced, the troy weight that had hitherto been used in England and Scotland had to give way to the avoirdupois weight then used in Ireland. The imperial measure was already being used in England, Scotland, and Ireland for liquids. Thus the avoirdupois ounce, weighing 437½ grains, and the fluid ounce—or the volume of distilled water weighing at a temperature of 60° F. 437½ grains—became the standards of weight and measure in the British Pharmacopœia.

The fluid ounce is divided into 480 minims, and so far as regards subdivisions corresponds to the ounce troy of 480 grains formerly in use, but as the minim does not weigh a grain, the fluid drachm of 60 minims is only equal to 54$\frac{7}{16}$ grains. However, all liquids except mercury are ordered by the British Pharmacopœia to be measured, and in all prescriptions they are dispensed by measure. All liquid medicines are ordered to be taken by measure, so that a consistency runs through the whole arrangement.

The United States Pharmacopœia retains the use of the troy weight, the wine pint of 16 ounces weighing 7291$\frac{9}{16}$ grains and the fluid ounce weighing 455$\frac{7}{16}$ grains in the case of water at a temperature of 60° F. Therefore, the United States liquid measure differs from the British liquid measure in each of its divisions.

On the continent of Europe all liquids, as well as solids, are weighed in dispensing, and in the formulæ of the pharmacopœias the same system is followed. Sometimes the proportions are expressed in grams, and sometimes in parts, but always by weight, so that in the case of a tincture ordered to be made with 1 part of the drug to 5 parts of spirit, the same proportions will be maintained in all countries where it is the practice to weigh everything. But 1 part of drug to 5 parts of spirit would have a different meaning in Great Britain and in the United States, where the spirit would be measured, and there would even be a further difference, since the measures used are not the same in the two countries.

It follows, therefore, that one of the first steps towards uniformity of pharmaceutical preparations is to obtain a standard in parts by weight—say, for example, 1 part of a drug to 5 parts of spirit. It would not be necessary to alter the method of British dispensing, or the directions of the pharmacopœia, by the substitution of weighing for measuring, since it is easy to determine the volume equivalent of a given weight of spirit, and to regulate the strength of the preparation accordingly.

The United States National Convention of 1870 directed the committee intrusted with the revision of the pharmacopœia that measures of capacity should be abandoned in the pharmacopœia, and that in all formulæ quantities should be expressed both in weights and parts by weight. But the committee was unanimous in the opinion that the execution of those directions would entail the use of a metrical system not employed in the United States or in Great Britain, and that while such a system would have to be constructed for the purpose, the change would involve alteration in the proportion of almost every formula, and would produce a corresponding disturbance in many of the doses. The Revision Committee, appointed in 1880 by the American Pharmaceutical Association, took the same view as the National Convention did in 1870, and recommended that all measures of capacity should be abandoned, and that quantities should be expressed only in parts by weight; also, that in reconstructing the form-

ulæ of officinal preparations, the following points were to be kept in view:—

(*a*). All tinctures, wines, etc., of which a slight variation of dose would be of no importance, were to be made as nearly as possible of uniform percentage strength—1 part of the drug to 5 or 10 parts of the tincture.

(*b*). In the case of highly active preparations, such as tinct. aconiti radicis, tinct. nucis vomicæ, tinct. opii, and tinct. veratri viridis, the strength then in use was to be maintained as nearly as possible.

But, supposing the pharmacopœia authorities of the United States decided to weigh all liquids, we should not have advanced much nearer towards international uniformity, if they resolved not to alter their strong tinctures, and, as shown in the tables, those are precisely the preparations which present so much variation in the different pharmacopœias. However, in regard to such preparations, the advantages of international uniformity are obvious, and it is the business of pharmacists to consider what is the best method of securing the equalization of the strength of officinal preparations containing potent drugs and common to the pharmacopœias of all nations. Free discussion of the subject at intervals, and especially at meetings such as the present, must have an effect in promoting the attainment of the object. But unless some standard for each preparation can be agreed upon, the pharmacopœia committees of different countries, when considering the issue of new editions, will be quite as likely to divide into two great classes as to coalesce into one. Thus, for example, the pharmacopœia formulæ for tincture of nux vomica practically order either 1 part in 10 or 1 part in 5.

Is it not advisable that in each country, when altering the strength of a preparation which is not altogether referable to one of two great classes, one strength, agreed upon internationally, should be adopted, so that eventually we might have that preparation of one uniform strength? Is it too much to hope that the committees having the power to make such alterations should at least confer together? But the most perfect committee for obtaining an international pharmacopœia would doubtless be one constituted of delegates from each country with full powers to act, and then each disputed point could be decided by a majority of votes.

In the mean time I would suggest that the pharmacopœia committees of each country should have a permanent existence, instead of being specially appointed when a revision of the pharmacopœia of any particular country is contemplated. They could under these circumstances at all times confer with one another, with a view to future changes in the direction of uniformity.

In the following tables the quantities in the British and in the United States Pharmacopœias have been converted into parts by weight for the purpose of comparison.

Tinct. Digitalis.

Dutch	1	Dried	Leaves	4	Spirit.
French	1	"	"	5	"
Belgian	1	"	"	5	"
Austrian	1	"	"	5	"
Spanish	1	"	"	5	"
Portuguese	1	"	"	5	"
Hungarian	1	"	"	5	"
Swiss	1	"	"	5	"
Greek	1	"	"	6	"
British	1	"	"	7.2	"
U. S.	1	"	"	7	"
Danish	1	"	"	10	"
Russian	1	"	"	10	"
Norwegian	1	"	"	10	"
Swedish	1	"	"	10	"
French	1	Fresh	Leaves	1	"
Belgian	1	"	Herb	1	"
Spanish	1	"	"	1	"
Portuguese	1	"	"	1	"
German	1	"	"	1.2	"

Tinct. Aconiti.

U. S.	1	Root		2.1	Spirit.
Austrian	1	"		5	"
Hungarian	1	"		5	"
Portuguese	1	"		5	"
British	1	"		6.4	"
German	1	"		10	"
Russian	1	"		10	"
Swiss	1	Dried	Leaves	5	"
Portuguese	1	"		5	"
Belgian	1	Dried	Herb..	5	"
Greek	1	"	..	6	Spt. Ætheris.
Danish	1	"	..	10	Spirit.
Norwegian	1	"	..	10	"
Russian	1	"	..	10	"
French	1	Fresh	Leaves.	1	"
Belgian	1	Fresh	Herb..	1	"
Spanish	1	"		1	"
Portuguese	1	"		1	"

Tinct. Arnicæ.

U. S.	1	Flowers		4.4	Spirit.
French	1	"		5	"
Belgian	1	"		5	"
Spanish	1	"		5	"
Dutch	1	"		8	"
Greek	1	"		8	"
German	1	"		10	"
Danish	1	"		10	"
Russian	1	"		10	"
Portuguese	1	"		10	"
Swiss	1	"		10	"
Norwegian	1	"		10	"
Swedish	1	"		10	"
Russian	1	Root		5	"
Portuguese	1	"		5	"
Austrian / Hungarian	1	Mixture Root & Leaf & Flowers		5.5	"
British	1	Root		16	"
French	1	Fresh	Flowers	1	"

Tinct. Belladonnæ.

French	1	Dried	Leaves	5	Spirit.
Belgian	1	"	Herb..	5	"
Spanish	1	Dried	Leaves	5	"
Portuguese	1	"	"	5	"
Swiss	1	"	"	5	"
U. S.	1	"	"	7	"
Russian	1	"	"	10	"
British	1	"	"	18	"
French	1	Fresh	"	1	"
Belgian	1	"	"	1	"
Portuguese	1	"	"	1	"
German	1	"	"	1.2	"
Hungarian	1	Root	"	5	"
Austrian	1	"	"	5	"

Tinct. Cantharidis.

Austrian	1	Powder		5	Spirit.
Belgian	1	"		5	"
Hungarian	1	"		5	"
Danish	1	"		5	"
Greek	1	"		6	"
Dutch	1	"		8	"
Russian	1	"		10	"
German	1	"		10	"
French	1	"		10	"
Swiss	1	"		10	"
Portuguese	1	"		10	"
Spanish	1	"		13	"
U. S.	1	"		28	"
Norwegian	1	"		30	"
Danish	1	"		30	"
Swedish	1	"		30	"
British	1	"		72	"

Tinct. Colchici.

Austrian	1	Seeds	5	Spirit.
Belgian	1	"	5	"
Portuguese	1	"	5	"
Swiss	1	"	5	"
Dutch	1	"	5	"
Greek	1	"	6	"
British	1	"	7.2	"
U. S.	1	"	7	"
Russian	1	"	10	"
French	1	"	10	"
Danish	1	"	10	"
German	1	"	10	"
Swedish	1	"	10	"
Spanish	1	Corm	5	"
Belgian	1	"	5	"
Portuguese	1	"	5	"
French	1	"	5	"

Tinct. Iodi.

Syn. Solutio Iodi Spirituosa.

Portuguese	1	Iodine	9	Spirit.
Swiss	1	"	9	"
German	1	"	10	"
Russian	1	"	10	"
Belgian	1	"	11.5	"
French	1	"	12	"
Dutch	1	"	12	"
U. S.	1	"	12.5	"
Spanish	1	"	12	"
Austrian	1	"	16	"
Hungarian	1	"	16	"
Danish	1	"	19	"
Norwegian	1	"	19	"
Swedish	1	"	19	"
Greek	1	"	19	"

British	1 Iodine, .5 Potass. Iodide.	32	Spirit.
U. S. (comp.)	1 Iodine, 2 Potass. Iodide.	25	"

Tinct. Nucis Vomicæ.

U. S.	1	Seeds	3.1	Spirit.
Austrian	1	"	5	"
Hungarian	1	"	5	"
Spanish	1	"	5	"
Portuguese	1	"	5	"
Belgian	1	"	5	"
French	1	"	5	"
Dutch	1	"	6	"
British	1	"	8	"
Russian	1	"	10	"
German	1	"	10	"
Danish	1	"	10	"
Swiss	1	"	10	"
Swedish	1	"	10	"
Norwegian	1	"	10	"

Tinct. Opii.

Syn. Tinct. Thebaica.

Greek	1	Powder	6	Spirit.
Russian	1	"	9.5	"
Swiss	1	"	9.5	"
German	1	"	10	"
Danish	1	"	10	"
Austrian	1	"	10	"
Hungarian	1	"	10	"
Norwegian	1	"	10	"
Swedish	1	"	10	Spirit, etc.
U. S.	1	"	11	Spirit.
British	1	"	12	"
Spanish	1	"	12	"
French	1	Extract	12	"
Belgian	1	"	12	"
Portuguese	1	"	20	"

Vinum Antim. Tart.

Syn. Vinum Stibiatum. Vin Emétique.

Belgian	1	Antim. Tart.	200 Malaga.
Portuguese	1	" "	200 Port Wine.
British	1	" "	219 Sherry.
U. S	1	" "	228 Sherry.
Hungarian	1	" "	240 Malaga.
Russian	1	" "	240 Malaga.
Dutch	1	" "	240 Sherry.
Greek	1	" "	240 Alcoholic Wine.
German	1	" "	250 Sherry.
Austrian	1	" "	250 Malaga.
Danish	1	" "	250 Sherry.
Norwegian	1	" "	250 Sherry.
Swedish	1	" "	250 Malaga.
Swiss	1	" "	250 Malaga.
Spanish	1	" "	288 Sherry.
French	1	" "	300 Malaga.

Liquor Plumbi Subacetatis.

	Lead Acetate.	Lead Oxide.	Water.	Sp. Gr.
Danish	3.3	1	15.3	1170 to 1175
Swedish	3.3	1	15.3	1170 to 1175
Norwegian	3.3	1	15.3	not given.
Austrian	3	1	10	1230 to 1240
German	3	1	10	1235 to 1240
Russian	3	1	10	1236 to 1240
Swiss	3	1	10	1236 to 1240
Portuguese	3	1	10	1260
British	2.5	1.75	10	1260
U. S.	2.5	1.5	10	1267
Dutch	2.6	1.5	10.3	1252 to 1256
Belgian	2	1	7	1240
Hungarian	2	1	8	not given.
Spanish	3	1	7.3	not given.
French	3	1	8	1320
Greek	3	1	9	1360 to 1365

Pulvis Doveri.

British	1	Ipecac	1	Opium in	10
Austrian	1	"	1	"	10
Danish	1	"	1	"	10
German	1	"	1	"	10
Greek	1	"	1	"	10
Hungarian	1	"	1	"	10
Norwegian	1	"	1	"	10
Portuguese	1	"	1	"	10
Russian	1	"	1	"	10
Swedish	1	"	1	"	10
Swiss	1	"	1	"	10
Dutch	1	"	1	"	10
U. S	1	"	1	"	10
Spanish	1	"	1	"	12
French	1	"	1	Ext. Opii in	11
Belgian	1	"	1	"	11

Vinum Colchici.

United States	1	Root	2.5	Sherry.
British	1	"	5	" (about).
Portuguese	1	"	10	Madeira.
Spanish	1	"	16	Malaga.
French	1	"	16.6	"
Austrian	1	Seeds	5	"
Hungarian	1	"	5	"
Swiss	1	"	5	"
Greek	1	"	6	Alcoholic Wine.
Belgian	1	"	6.6	Spirit and Malaga
United States	1	"	7.5	Sherry.

Vinum Colchici.—Continued.

Dutch	1 Seeds	9	Spirit and Sherry.
German	1 "	10	Sherry.
Russian	1 "	10	"
Danish	1 "	10	"
Norwegian	1 "	10	"
Portuguese	1 "	10	Madeira.
Spanish	1 "	16	Malaga.
French	1 "	16.6	"

Unguentum Cantharidis.

Pommade Epispastique Verte.

Spanish	1 Cantharides	2.3	Ung. and Wax.
United States.	1 "	3	Resin Cerate.
Russian	1 "	4	Oil and Wax.
Norwegian	1 "	4	Ung. Basil.
Swedish	1 "	4	Ung. Ter. Resin.
Danish	1 "	5	Oil and Wax (about).
Greek	1 "	5	Oil and Wax.
	(treated with Spirit.)		
Belgian	1 Cantharides	5.6	Lard and Wax.
German	1 "	6	Oil and Wax.
Swiss	1 "	6	" "
Dutch	1 "	6	" "
	(treated with Spirit.)		
British	1 Cantharides	6.4	Oil and Wax.
Belgian	1 "	10	Lard and Wax.
Portuguese	1 "	16.6	Oil, Wax, etc.
French	1 "	32	Ung. and Wax.
Belgian	1 "	32	Ung. and Wax (about).

Unguentum Hydrargyri.

Pommade Mercurielle à parties égales.

United States.	5 Mercury	2.5	Lard	2.5	Suet.
Portuguese	5 "	4	"	1	"
Spanish	5 "	5	"	—	
French	5 "	4.6	Benz. Lard.	0.4	Wax.
Belgian	5 "	4	Lard	0.5	Suet.
				0.5	Oil.
British	16 "	16	"	1	Suet.
German	6 "	8	"	4	"
Russian	6 "	8	"	4	"
Greek	6 "	8	"	4	"
Austrian	6 "	9	"	3	"
Hungarian	6 "	9	"	3	"
Swiss	6 "	10	"	4	"
Dutch	6 "	21	"	—	
Danish	9 "	22	"	14	Suet.
Swedish	9 "	27	"	9	"
Norwegian	10 "	30	"	10	"

THE EQUALIZATION OF THE STRENGTH OF OFFICIAL PHARMACEUTICAL PREPARATIONS CONTAINING POTENT DRUGS.

By EDWARD SCHAER (Zürich).—I. A real "Pharmacopœia Europæ," viz., a complete Codex Medicinalis, containing uniform prescriptions for all preparations generally used in medicine, being a matter of great difficulty in in many respects, and therefore not likely to be published during the next few years, an international standard of uniform *legal* strength for all narcotic and heroic preparations (viz., galenical and chemical substances) would be highly desirable, and would be so considered by the medical and pharmaceutical bodies of most European states.

II. This would be the case, as far as I am able to state, in Switzerland, the more so because of our frequent contact with strangers from all parts of the world; the preparation of medical prescriptions originating from distant countries causes much trouble and responsibility to Swiss pharmacists.

III. It seems very desirable—and worthy of thorough discussion—that an international legal codex concerning heroic medicines should contain not only the galenic preparations (as extracts, tinctures, solutions, etc.), but also those chemical preparations which, not being absolutely pure and distinct chemical substances, must be declared a mixture of substances, and vary as much in composition as in medico-dynamic effect, according to their mode of preparation. From this point of view the said international codex ought to include the exact description of the characters of several highly poisonous alkaloids, like aconitina, digitalina, veratrina, and a few others, whose chemistry, as yet, cannot be judged as entirely settled and which, besides, occur in commerce, not as pure chemicals, but as more or less impure substances.

IV. The question of the international uniform strength of a certain class of chemico-pharmaceutical substances suggests the idea of publishing at the same time an *international* table (*invested with legal authority*) of a certain convenient number of "doses maximæ," of heroic substances, such as those in constant use in many states of the Continent. The legal use of these tables, stating the maximum doses "pro die," and also the "doses simplices maximæ," which the pharmacist is bound not to transgress without certain legal formalities, has been shown in many countries to give a direct control over medical prescriptions to the pharmaceutical chemist, so that it would well deserve mature examination, and in the case of approval by a majority of states might be introduced in the international codex for heroic preparations.

V. In case of the suggestion meeting with general approval, this list of maximum doses would also represent the official list of compounds and chemicals to be included in the said codex.

VI. The idea of an international codex of the character described having been accepted, as we venture to hope, by the International Pharmaceutical Congress, the Government of one of the states of Europe would, after intimation by the same Congress, address an official invitation to the other states in order to prepare a conference, to which the states consenting might send as delegates a convenient and equal number of pharmacists and physicians. This conference ought to discuss and to settle all principal questions concerning the contents and the mode of publication of the codex, and a committee elected by the same official conference should be invested with the care of preparing a first proof of the codex.

THE EQUALIZATION OF THE STRENGTH OF OFFICIAL PREPARATIONS CONTAINING POTENT DRUGS.

By J. M. MAISCH (Philadelphia).—Permit me to say that in my opinion the subjects selected for discussion are those which I have long regarded as eminently proper and of the greatest importance. If the Congress could have met a year or two ago and could have agreed upon a plan for the *equalization of the strength of potent preparations*, I think that the United States would have gladly responded to the agreement by adopting it. With the considerable difference in the strength as authorized by the British, French and German Pharmacopœias, I fear that we shall have here modifications from our old standards —perhaps unimportant ones—which will not bring us into nearer harmony with Great Britain than heretofore, nor with any one of the conflicting authorities of the European continent; and it will probably not be before 1890 that the equalization proposed can be practically carried out here.

But—and that seems to me the most important step in the proper direction—the idea of a universal pharmacopœia, as heretofore suggested, assumes the—in my opinion —only feasible plan of equalization of strength of drugs and preparations which are likely to be especially hurtful; and if the Congress can with unanimity agree upon these points, I think the result will be as salutary as that of the convention of the Scandinavian countries.

EQUALIZATION OF THE STRENGTH OF OFFICIAL PREPARATIONS CONTAINING POTENT DRUGS.

By CHR. BRUNNENGRÄBER (Rostock), *as representing the German Pharmaceutical Association*.—From an international point of view the trade in medicine is becoming more and more important by reason of the steadily increasing spread and multiplication of means of communication, and it therefore requires the working out of formulæ for those pharmaceutical preparations which con-

tain powerful agents, as well as an effort to obtain the admission of these formulæ into all pharmacopœias, so that uniformity in the composition of these preparations may be attained. The preparations in question should be arranged in alphabetical order. The several constituents should not be specified by weight, but only in parts. The characters of the preparations, appropriate methods of testing them, and the way of keeping them should also be indicated.

SUGGESTIONS.

From JAMES T. SHINN (Philadelphia), *President of the American Pharmaceutical Association.*—I would respectfully suggest the propriety of making all preparations of the most powerful medicines, such as opium, arsenious acid, etc., of uniform strength in all pharmacopœias, and the adoption in all formulæ of parts by weight, in place of measures of capacity and definite weight.

From L. MEYERS CONNOR (Dallas), *President of the Texas State Pharmaceutical Association.*—That the Pharmacopœias of Great Britain and of the United States should be harmonized by a joint session at an early date.

From EMLEN PAINTER (San Francisco), *President of the California College of Pharmacy.*—1. That the metric system of weights and measures be recommended for universal adoption.

2. That all pharmacopœial quantities be by weight.

MR. MADSEN (Copenhagen) said: The question now under discussion is perhaps the only question which could at the present time gather pharmacists of all countries together, to co-operate with a common object in view. I do not mean by this to say, that there may not be other questions which may be of great importance for pharmacy in general. The honorable direction of the great pharmaceutical Society of Great Britain, within whose walls we are at present as guests, has put forward such questions, but I mean that if we do not now succeed in finding ways and means to obtain a practical result out of this matter, it will be of no use for the Congress to take up other questions in the hope of getting a result out of them. The question of a pharmacopœia which should be intelligible to the whole civilized world has been discussed at all the International Pharmaceutical Congresses, but I think that the last Congress, in St. Petersburg, was the one which exerted itself the most on behalf of this matter, and which took really active steps in order to further the formation of an International Pharmacopœia. It will be remembered that the French delegate, my friend Dr. Méhu, laid on the table a complete "Pharmacopée Universelle," composed by the Société de Pharmacie de Paris. This work was not printed, but only written on loose sheets of paper. These latter were distributed amongst the different delegates, in order that they might make their remarks on them, and then send them to St. Petersburg, where the Secretary of the Pharmacopœia Commission, Mr. Jordan, had undertaken the tremendous task of collecting and revising the huge quantity of subject matter; much time and trouble has thus been thrown away. I do not know where all this work is to be found now after the death of my zealous and most honorable friend. But it would be almost impossible, from the very nature of the case, to obtain a homogeneous work, if different persons, scattered about in Europe, were to compile a large International Pharmacopœia, without their entering into direct communication with each other. The great interest which, in my opinion, must be attached to the resolutions made at St. Petersburg, was summed up in the proposal that the Russian Government should be requested to make the foreign Governments acquainted with this new undertaking through diplomatic channels, accompanied by the request that they would do their best to further its completion. It is not, however, pharmacists alone, who have made efforts to obtain an International Pharmacopœia. The medical faculty also, who must absolutely go hand-in-hand with pharmaceutists in this matter, has been fully conscious of its importance, and resolutions were passed both at the general Congress for Medical Sciences at Brussels, in 1875, as well as that at Geneva, in 1879, with the object of working towards an International Pharmacopœia on the basis of the provisions agreed upon at St. Petersburg. A Committee composed both of doctors and pharmaceutists was formed in Geneva to further the matter, with Professor Pachiotti, of Turin, as President, and both the largest and smallest states in Europe were represented, yes, even America, and since I am myself a member of this Committee I am in a position to assure you, gentlemen, that it has effected nothing, and why? Because it is impossible successfully to co-operate in such a way when everything has to be settled in writing. But I must not here omit to state that a perfect concord of opinion on this matter exists between doctors and pharmaceutists, both of us wish to see international agreement on this subject, and to this I will add, that English doctors gave their support and were members of the Committee. You will have seen, gentlemen, from this short historical retrospective glance, that everything which has been done up to the present has been resultless in so far as no result has been forthcoming. But I think, on the other hand, that the mutual interchange of thoughts between men who stand at the head of their science has not been resultless, and that the wish to see the creation of a universal pharmacopœia has thereby become stronger and stronger. I have now given one important reason why the universal pharmacopœia has up to the present failed to become a reality. Another, and perhaps the most essential reason is, that the object we have been striving for has been too great. This opinion was already expressed at St. Petersburg by the two English representatives, our much respected President, Mr. Greenish, and Mr. Sutton, who already then regarding the question from a practical point of view was of opinion that we ought to begin in a small way, *first to try to get* homogeneousness in all the more generally used effective preparations, and then, or perhaps later on, to continue building on this foundation. This thought is realized in the motion which stands as No. 1 on the order of the day, the question being reduced from that of being a universal pharmacopœia to that of an "equalization of official pharmaceutical preparations containing potent drugs." After what I have laid stress on in the preceding, I cannot do otherwise than agree with this, and as the question is, in my opinion, practically stated, the point is now to carry it out practically. At the Congress in Geneva, the highly gifted Dr. Vermeuil, of Paris, said: —"Je crois beaucoup plus au succès d'un bon livre fait par des hommes compétents." Those are true words. We must make up our minds to have a collection of the most commonly used pharmaceutical preparations containing "potent drugs mutually agreed upon by us," and not before that has first been done will pharmaceutists be able to say that their task has been accomplished. I do not think it is here necessary to discuss the principles for the composition of these preparations, the modern principles which were stated at the preceding Congresses seem to me to be perfectly satisfactory, and the many scientific works which have appeared, more particularly the two new pharmacopœias which at present have been compiled in Berlin and Paris, will be of great importance. The German Pharmacopœia Commission, which compiled the new pharmacopœia for the German empire, assembles from time to time in order to confer together by word of mouth, which method, by the by, I consider to be absolutely necessary in order to get our work finished, and it has given me several ideas in that direction. I therefore take the liberty, since I do not know in what manner the honorable committee of organization has proposed to arrange this matter, to recommend the following resolution:—

> "That this Congress invites the Pharmacopœia authorities of all countries to send a delegate to a Commission, meeting in a central European city, for the purpose of taking steps to equalize the strength of pharmaceutical preparations containing potent drugs, and if possible also of obtaining uniformity in other respects between the Pharmacopœias of various countries."

MR. MARTENSON (St. Petersburg), who spoke in German, explained the reasons why the work of the International Pharmacopœia, which was commenced at St. Petersburg, was not completed. The Committee found itself in a great difficulty. After a large amount of correspondence it drew up a proof of the Pharmacopœia as far as letter O, but unfortunately that work was all lost through a mistake of the Secretary, Mr. Jordan, who, when suffering from the illness of which he had since died, destroyed the MS. However, he believed, that if that work had been continued, it would not have produced a pharmacopœia which would have met with general acceptance, judging from the views he had heard expressed in that room.

MR. MEHU (Paris) said it was somewhat difficult to understand what was meant by the manuscript being burnt. The International Pharmacopœia prepared in Paris was not burnt. He now had a copy with him which had been enlarged and corrected, and the Society of Paris was willing to print it and send a copy to each member of the Congress. It had been revised according to the directions of the Congress at St. Petersburg.

MR. POEHL (St. Petersburg) said the Russian Government was prepared to take steps for the preparation of an International Pharmacopœia. It would be ready to take diplomatic steps for the appointment of a commission to carry out this object.

MR. MEHU (Paris) said an allusion had been made to the manuscript of the Pharmacopœia which had been burnt. This was not the case, but the mistake might have arisen in this way:—A translation of this Pharmacopœia was to have been made into Latin by Mr. Jordan. He was now dead, and, of course, that translation fell to the ground, but it was quite possible that that translation or a part of it might have been burnt. The Pharmacopœia itself was intact, and was now producible.

M. PETIT (Paris) said it was his opinion that in these days pharmacy ought to occupy itself with an International Pharmacopœia of powerful drugs, but it was quite possible also to go further than that. Things were now ready for the construction, not of a mere comparative pharmacopœia, but of one that should be universal. A good deal of trouble had been already expended upon it; a great deal had been done in that direction, and there had been several discussions on the subject at previous congresses. Not only so, but it would have been quite possible at that moment to have brought before the members of the Congress something definite in every respect, only it was thought better to defer the actual production of such a work until after consultation with a congress like the present. But materials for it existed; it was highly desirable, and it was quite possible to accomplish it.

MR. MARTENSON desired to add, by way of explanation, that the manuscript which had been burnt was the one prepared at St. Petersburg.

MR. GILLE (Brussels) remarked that there was, at the present moment, a congress on medical science just commencing its sittings in London, and one of its meetings would be devoted to the subject of an International Pharmacopœia. That would most probably be on Thursday next, and he thought it would be a good thing for this Congress to write an official letter to the medical body, stating that the members were engaged on this question, and would be happy to assist at the meeting and give the benefit of their practical experience on the question. The Congress might not only do that, but express its thanks for the sympathy which had been shown to pharmacists by medical men. He would therefore propose that a letter of that sort be written.

MR. SINIMBERGHI (Rome) agreed with the proposal which had been made by Mr. Gille. He had been appointed as a representative to that assembly by the Minister of Public Instruction, he being of opinion that this assembly would form part of the Medical Congress, and that pharmacy would be, as in other places, a part of the Medical Congress. Having, therefore, the honor of representing the Department of Public Instruction at Rome at this Congress, he found himself in duty bound to express the same opinion as Mr. Gille as to sending a letter, to which he might add his name, as he was an extraordinary member of the Medical Congress. With regard to the pharmacopœia, he agreed with all that had been said. The Italians, unfortunately, came into the concert of civilized notions very late, and, therefore, they had not as yet a national pharmacopœia of their own, but the preparation of one had been intrusted to his friend Signor Cæsaris and himself, on which they were at present engaged. He hoped these resolutions would be carried out, because it would assist them very considerably in the formation of the National Pharmacopœia, if an International one could be agreed upon, and they would be also able to advise their Government to adopt it.

MR. GREENISH said there seemed some difficulty in understanding that the MS. had been burnt at St. Petersburg, and yet that it should exist and be produced by Mr. Méhu, but he thought he could explain it. At the third International Congress at Vienna, the Pharmaceutical Society of Paris was requested to give its ideas of an International Pharmacopœia, and at the Congress at St. Petersburg, Dr. Méhu brought the MS. which he had now in his hand, which was laid on the table. The Congress at St. Petersburg thanked the Society of Paris for the attempt to carry out the project, and appointed a committee to sit in St. Petersburg, to consider the French draft and eventually to draw up a new pharmacopœia. Portions of this French draft were sent to different persons. He had one portion; Mr. Sutton another, Herr Dittrich another, and so forth. And it was this new pharmacopœia, drawn up from the corrected proofs which were sent to the Committee at St. Petersburg by the different members of the Congress, which had unfortunately been burnt.

MR. BRUNNENGRAEBER (Rostock) said he thought all present were agreed to support the proposition of Mr. Madsen. The MS. which Mr. Méhu had in his hand he thought could only be used as useful material for the work. With regard to an International Pharmacopœia, nothing tangible was produced, because the work was not conducted according to the directions given. It would be impossible to construct an International Pharmacopœia in the manner discussed in the various Congresses, and he thought to really produce a satisfactory result they must be content to begin in a small way; in the first place, to take care that a list be drawn up of medicines containing potent drugs, and he would propose that the Congress appoint a committee to draw up a list of such drugs or medicines containing potent drugs. He would, therefore, propose the addition to Mr. Madsen's motion of these words, "and recommends that a committee be appointed to do the necessary work, and that the Pharmaceutical Society of Great Britain be asked to undertake to carry it out."

MR. HAMPSON (London), as an English pharmacist, wished to say a word on this question. The preparation of an International Pharmacopœia seemed to him something like the making of a universal language; it was a grand thing to look forward to, but it was quite impossible, at any rate at present. He felt sure that any steps to be taken, if to be useful, must be from the simple to the difficult and they must be content with small things to begin with. He believed the resolution proposed by the first speaker was one in the right direction, and that they should be content with that proposal and confine their attention for the present to potent drugs. With respect to the lost MS., it was perhaps better not to refer further to the subject, but there was a proposition that the Pharmaceutical Society of Great Britain should undertake some work in connection with this matter—to prepare a list or do something of that sort. With respect to that, he would say that in this country the position of pharmacy was very different to that which prevailed on the Continent. The Pharmaceutical Society of Great Britain, although it had been in existence for something

like fifty years, had as yet no voice in the making of the Pharmacopœia. It was very humiliating to have to make that admission, but it was the fact. He was aware that able English pharmacists had been employed to assist, but they had not been employed as representing that Society, and only incidentally did they represent pharmacy at all. He was very glad of the proposal of Mr. Gille, who wished a communication to be sent to the Medical Congress, for it would be a benefit if the medical men could only be got to form an intelligent opinion on the question of an International Pharmacopœia. In this country, before such a project could be fairly entertained, pharmacists would have to get medical men to think with them in the matter, and to see whether they were prepared to support the scheme of an International Pharmacopœia, or the portions of that scheme with regard to potent drugs. If the time should arive that that Congress should meet again in that room some years hence, he hoped that neither he nor any one else would have to tell that same tale, that the pharmacists of Great Britain had no voice in the preparation of their Pharmacopœia.

MR. GILLE said it was proposed that the Pharmacopœia should be made out in two distinct parts; that the first should contain the results already arrived at by various pharmacists, and that that part should be printed and despatched, first of all to Russia, and submitted by the Government of that country to other Governments for approval. The second part should not be so treated, but the various questions relating to it should be postponed for further discussion and arrangement until a more deliberate opinion had been formed upon it.

MR. MEHU (Paris) said there was but one MS., and it was not divided into two portions. To some parts of it notes had been appended, but it still remained one. He rather thought from the tone of the discussion that some fear was entertained lest this Pharmacopœia might be too French in its constitution, but he wished them to disabuse themselves of any idea of that kind, because, so far from being too French, great care had been taken to select information from all possible sources. That morning a paper had been read by Mr. Squire, on the Construction of the Pharmacopœia, in which allusion was made to the fact that there was a very great difference in the French of Dover's powder—so much so that in one case extract of opium was used instead of the powder, thus making it of double strength; but so much had been determined by the French in the formation of their pharmacopœia to come to a general understanding, that they had gone back to the original formulæ of Dover's powder, and now proposed to use the powdered opium according to the old formulæ, instead of the extract of opium. The pharmacopœia so arranged was of an original character; all party spirit had been rigorously excluded from it. It was now ready to be printed, and when printed it could be judged of by all. He suggested that as soon as it was in a proper shape to be printed, a commission should be appointed to consider it, and in three months it might be ready.

MR. MARTINDALE (London) supported the motion. He said there were really two subjects before the Congress, one of equalization of the strength of official preparations, and another the formation of a Universal Pharmacopœia. With regard to the production of such a work, he thought it should be left to private enterprise—much in the same way as Mr. Jourdan had prepared his. The International Pharmacopœia would be distinct altogether from a universal pharmacopœia. A commencement should be made by forming a commission to equalize the strength of preparations containing potent drugs, and in thinking over the difficulties which such a commission would meet with, he concluded one would be with regard to crude substances used. For instance, in the case of acids used in Western Europe, they were much stronger than in Central or Eastern Europe, and the first thing would be to get those uniform to start with. Again, with regard to solvents for different pharmaceutical preparations, there was a great diversity in the strength of spirit used in the different pharmacopœias. As far as English alcohol was concerned, it might be made to meet the German and French formulæ by increasing the strength of the spirit as we had a spirit, containing 84 per cent of absolute alcohol. In Germany there was a strong preparation, and the French had it of various strengths. He was told that the American Pharmacopœia would have a spirit still stronger, containing about 94 per cent of alcohol. All those points should be made uniform before any attempt was made to compile an International Pharmacopœia, and it should be done by the different countries trying, by means of committees, to settle these points amongst themselves.

MR. CARTEIGHE (London) said the question really before the Congress was, whether it was desirable that there should be one universal pharmacopœia for Europe and all the world, and including all medicines, or whether each country should be left to its peculiarities, its materia medica, and its own usages, and to simply have a small handy volume containing the strengths of all important and potent medicines in such a form that every one could understand them. It was not desirable to go at all into detail, and he thought it was not a question whether it was desirable to have one volume to be used all over the world; whether there should be a big thing—which some of them thought a utopian and impossible thing—a thing which would destroy everything remarkable and special in the various countries. He would not destroy the peculiarities of pharmacy in any country, but would rather leave it with all its peculiarities. But it was necessary for the public health and public safety that there should be uniform strength in potent medicines. Therefore, he agreed with all the speakers—and he believed English pharmacists were unanimously agreed—that the very large ideas of their Paris friends were such as could not be recommended, and even if they could recommend them as pharmacists, they were certain that the medical profession could not be persuaded to follow them. Therefore, the vote to be taken would be on the broad question whether the members of the Congress considered that it was desirable to have a large work—a Universal Pharmacopœia—or whether it was better not to have such a work, but to have a small International book containing the more potent drugs, with their strengths and doses indicated in different languages.

MR. PETIT (Paris) said the discussion which had arisen that day rather differed from conclusions arrived at by previous Congresses, because there had been a very great tendency to approach the formation of a universal pharmacopœia. It was never meant, however, to abolish national pharmacopœias. The pharmacopœia which had been drawn up by the French Society had already been adopted in some places—as, for instance, in the Argentine Republic. But, again, there were something like fifty pharmacopœias in existence, while, at the same time, there was only one for all Germany, one for the United States, and one for the British Empire, It, therefore, seemed as if pharmacists would be rather behind the spirit of the age if they did not attempt to frame a universal pharmacopœia. The Pharmaceutical Society of Paris had a work in hand which it scarcely anticipated—in fact, it had more thrown on its hands than it could originally have thought likely, and the late attempts had been towards simplifying as far as possible the various formulæ. There was a universal tendency at present that all formulæ of every description should be simplified, and he thought this would be more and more the case every day. All knew that science was one. Chemistry made very great advances, but chemistry was but one, and, therefore, it was to be contemplated that as science was one and increased, and as chemistry was one and always developing, they must sooner or later end in the adoption of a universal pharmacopœia. With regard to the simile which had been used of the universal language, he did not see that the two cases were at all parallel.

MR. SYMES (Liverpool) said it had occurred to him during the reading of the papers that each writer seemed unaware of the fact that the Pharmaceutical Society had

very little influence in the adoption of the pharmacopœia, and, therefore, he thought Mr. Hampson's remarks would be valuable. In order for a pharmacopœia to be of any service, pharmacists must obtain the co-operation of the medical profession, which at present they had not obtained in this country. They all trusted that the meeting of this Congress would assist in that direction. Mr. Carteighe put very precisely the abstract object of the motion, but he took it if the vote were taken merely on the very excellent epitome which he had given of the discussion, the meeting would be no nearer to any practical result than it was at present. The discussion had assumed rather a practical character, and every speaker seemed desirous that the Congress should admit not only the principle, but very soon get to work in carrying it out. It would be for the Congress to decide whether the Committee to be appointed should start *de novo* the work of the International Pharmacopœia, or whether it should accept what was already done and have that circulated, and endeavor to improve it and work upon it; whether one committee in this country or another should initiate the work and carry it out to a certain extent, or whether a small committee should be appointed in this country, and that some means of communication should be adopted whereby the working of these various committees from time to time might go on in concert, so that when the Congress met again two or three years hence, the work might be more or less performed and ready for being carried into effect.

MR. GODEFFROY (Vienna) said he thought all the members of the Congress were of opinion that the time was not yet come for a universal pharmacopœia, because it was simply impossible; but it was rather suggested that there should be an appendix to the various national pharmacopœias. He thought they would all agree that the right way to proceed would be beginning with a smaller work in which the strengths of the pharmacopœia preparations should be contained, which might be accomplished by the procedure Mr. Madsen proposed, and he hoped that attention would also be given to nomenclature, weights, and temperature in the various countries.

MR. BALKWILL (Plymouth) thought that the Congress could hardly send a message to the Medical Congress unless the members of it were of one mind as to what was possible. The suggestion of Mr. Carteighe to have what he should call a table of exchange of convertible strengths of the different preparations rather than a pharmacopœia was quite possible to be carried out immediately; in fact it could be prepared and printed before the year was out. Then it seemed to him there would be within easy reach an International Pharmacopœia representing the most powerful drugs and behind that there was the larger question, which would take a very long time before anything was done practically.

The PRESIDENT said the subject brought before the Congress in the motion had been very fairly and dispassionately discussed; the motion was that this Congress invite the pharmaceutical authorities of all countries to send delegates to a committee meeting in a central European city for the purpose of taking steps to equalize the strengths of pharmacopœial preparations containing potent drugs. Of course Mr. Madsen who had introduced the subject was entitled to offer any remarks he wished in reply.

MR. MADSEN said he could only thank the members of the Congress for the kind manner in which they had taken up the proposition. With regard to Mr. Méhu's work, it was too great at present. They should commence by small things and go on to greater. They had commenced a Universal Pharmacopœia at St. Petersburg; the times had now changed and he thought at present they had to be content with the suggestion he had made. As to the proposition to send a letter to the Medical Congress he did not think it would be dignified on their part to do so without having been invited to take any part in the discussion. Pharmacists had commenced this work themselves and they should carry it on, though of course if the medical authorities liked to invite their co-operation they would be very glad to give it to them.

MR. VON WALDHEIM (Vienna) said he thought the question was not well understood, and if the motion were adopted they would never get an International Pharmacopœia simply because they would not get the committee appointed. Government never appointed committees of this sort or paid them. They must send delegates from their own Congress.

[To be Continued.]

The American Pharmaceutical Association.

TWENTY-NINTH ANNUAL MEETING.

THE AMERICAN PHARMACEUTICAL ASSOCIATION held its twenty-ninth annual meeting at Kansas City, Mo., on the 23d, 24th, and 25th of August. The meetings were held at Masonic Hall, and one hundred and thirty members were registered.

First Session.

Vice-President, Geo. H. Schæfer, in the chair. Prof. John M. Maisch, the permanent Secretary, read a letter from President Jas. T. Shinn, stating his inability to be present, owing to a recent disastrous fire in his pharmacy. Col. D. S. Twitchell being introduced, delivered an

ADDRESS OF WELCOME,

in behalf of the Mayor, Common Council, and citizens of Kansas City, to which the Vice-president replied on behalf of the Association, returning thanks for the hospitality which had been so generously extended. Mr. Robert J. Brown, of Kansas, also extended a welcome to members on behalf of the States of Kansas, Missouri, and Iowa. This speaker, in alluding to a proposed excursion for the members to Santa Fé, briefly described the country and its geological formation, through which it was proposed to take the excursionists.

A Committee on Credentials having been appointed, the Vice-President proceeded to deliver the

ANNUAL ADDRESS.

He spoke of the eminent and successful labors performed by the Association since its formation in the City of New York thirty years ago, of the large membership, and the representative character of the Association, through delegates and other members of the various colleges and pharmaceutical associations of North America. The Vice-president alluded at some length to the efforts made and being made in various parts of the country to place legal restrictions on the practice of pharmacy. He spoke with some warmth of the burdens of special taxes and licenses imposed by the general and local governments, and recommended concerted action on the part of druggists for relief from those burdens. Mr. Schæfer spoke of the benefits derived from membership in the Association, alluded to the papers read and discussions had thereon, to the pleasure and instruction derived by members meeting at various cities of the United States and Canada. He spoke also of the work of the different officers of the Association, of the meetings of pharmaceutical bodies elsewhere, and notably of the meeting of the "International Pharmaceutical Congress" at Leyden. Space will not permit our giving a verbatim report of this address, which was listened to with great attention.

Prof. Remington moved that a committee be appointed to take into consideration the recommendations of the Vice-President. The committee appointed consisted of Messrs. J. P. Remington, of Philadelphia; Prof. G. F. H. Markoe, of Boston, and W. H. Crawford, of St. Louis.

INVITATIONS.

A telegram from the President of the Bismarck Fair Association, inviting the Association to visit the exhibition at Bismarck, was read by the Secretary.

The Secretary was instructed to acknowledge the receipt of the invitation, with thanks.

A telegram was read from Prof. Emlen Painter, of San Francisco, in behalf of the California College of Phar-

macy, inviting the Association to hold its next meeting in San Francisco.

Mr. Gordon, of Cincinnati, offered a resolution, saying that the Association would accept the invitation of the North Western Fair Association provided it could be done. It was amended so as not to bind the Association as a body, but allowing individual members to go. It was so adopted.

THE DELEGATES.

At this point the Committee on Credentials made their report of delegates, properly accredited, viz.—

Colleges of Pharmacy.—Chicago, Cincinnati, Louisville, Maryland, Massachusetts, National (Washington), New York, Ontario, Philadelphia, and St. Louis. Total, 45.

Pharmaceutical Associations (State and Local).—Alabama, Connecticut, Georgia, German (of New York), Illinois, Iowa, Kentucky, Kansas, Kings County (New York), Missouri, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Richmond (Virginia), West Virginia, and Wisconsin. Total, 81.

Alumni Associations of the following Colleges.—Cincinnati, Philadelphia, Massachusetts, New York, and St. Louis. Total, 23. [A number of persons represented more than one body.]

APPLICANTS FOR MEMBERSHIP.

The names of sixty-two candidates having, in accordance with the new by-law, been prominently posted in the room, were presented by the Secretary of the Council. The several pharmaceutical bodies represented then nominated one delegate each from its delegation as a Nominating Committee, the chair appointing five members from the Association at large.

Second Day—Morning Session.

The Nominating Committee presented its report. Balloting for officers then took place, with the following result:

THE NEW OFFICERS.

President, P. W. Bedford, of New York. *First Vice-President*, Emlen Painter, of California *Second Vice-President*, George Leis, of Kansas. *Third Vice-President*, John F. Judge, of Ohio. *Treasurer*, Charles A. Tufts, of New Hampshire. *Permanent Secretary*, John M. Maisch, of Pennsylvania. *Reporter on the Progress of Pharmacy*, C. Lewis Diehl, of Kentucky. *Members of the Council whose term expires in* 1884, Joseph Lyon Lemberger, of Pennsylvania; William John Maclester Gordon, of Ohio; John Ingalls, of Georgia. *Committee on Drug Market*, Louis Lehn, Chairman, of New York; James G. Steele, of California; P. C. Candidus, of Alabama; Thomas Whitfield, of Illinois; John P. Smith, of Maryland. *Committee on Papers and Queries*, J. U. Lloyd, Chairman, of Ohio; Starr H. Ambler, of New York; Wm. W. Bartlett, of Massachusetts. *Committee on Prize Essays*, C. Lewis Diehl, Chairman, of Kentucky; John F. Judge, of Ohio; Emil Scheffer, of Kentucky. *Committee on Legislation*, John M. Maisch, Chairman, of Pennsylvania; Samuel A. D. Sheppard, of Massachusetts; Charles Mohr, of Alabama.

The newly-elected officers having assumed their duties, Professor Bedford, President-elect, addressed the Association.

Vice-Presidents Leis and Judge also addressed the Association, briefly thanking it for the honor conferred.

The Secretary of the Council then read additional proposals for membership; also a list of members elected since the last session.

The Secretary read a communication from the "Toledo Pharmaceutical Association," asking recognition and extending an invitation to hold the next annual meeting at Toledo. It was received with thanks and referred to a committee to be appointed hereafter.

Prof. Remington then read the

REPORT ON THE DRUG MARKET,

forwarded by Mr. Lehn, of New York, which set forth that the drug trade of the past year had fully shared the general prosperity of the country, and had not been disturbed by wild speculation as in the preceding year, but the steadily increasing demand had been well met by ample supplies, while prices had generally been in favor of the buyers. The report then noted some of the more important changes which had taken place in the prices of the most important staple drugs, and brought to the notice of the Association some of the new remedies and novelties which had been brought to the notice of the medical and pharmaceutical profession during the past year.

The report was accepted and referred to the Committee on Publication.

Prof. John M. Maisch presented the report on the

"COMMITTEE ON LEGISLATION,"

from which we learn the following interesting facts: "Since the last meeting of the American Pharmaceutical Association, the Legislatures of a number of States had pharmacy laws before them for consideration, and it is a matter of regret that in three of the principal States near the Atlantic coast the bills failed to pass. In Massachusetts, where a bill had been framed by the Essex County Druggists' Association, considerable opposition was encountered, and much unjust ridicule was heaped upon the advocates of the measure, which was finally defeated by a vote of 96 noes against 88 ayes.

"In the State of New York a bill had been prepared by a committee of the New York State Pharmaceutical Association, which likewise failed to become a law.

"In Pennsylvania, no less than four bills affecting pharmacy were before the Legislature. Of these one had been drafted by a committee of the Pennsylvania Pharmaceutical Association, and was reported with a negative recommendation by the committee on the judiciary general, but was recommitted and reported favorably; when up for final passage in the House, it received only forty-six affirmative votes. A second bill did not make any provision for examination or registration, but simply declared those as qualified to compound prescriptions, who are graduates in medicine or in pharmacy, or who have had at least three years' practical experience in the compounding and dispensing of medicines. A third bill aimed at regulating the practice of pharmacy in the county of Alleghany, and a fourth bill, which was negatively recommended, would have compelled physicians to write their prescriptions in the English language, and pharmacists to attach a copy of such recipe compounded to the bottle or package."

Pharmacy bills before the Legislatures of Kansas and California likewise failed to pass. The Chairman gave synopsis of the pharmacy laws passed since the last annual meeting in the States of Arkansas, Connecticut, Illinois, Missouri, North Carolina, and West Virginia.

THE PURITY OF DRUGS.

Of this the Committee says: "A subject of great importance is the purity of drugs. For a number of years the Association appointed a special committee on adulterations and sophistications. The reports of these committees have done much good in directing attention to adulterated articles, and in preventing or exposing fraud; but they have likewise been quoted as proof of the inferior or sophisticated condition of the great bulk of the drugs in the American market. It is not the purpose of this committee to produce proof that pure drugs, chemicals, and pharmaceutical preparations can, without difficulty, be obtained from the wholesale dealer as well as from the retailer, and that the same as in other countries. Cupidity will induce certain men to lessen the quality in order to increase their profits. Adulteration of drugs and food is an evil which should receive prompt attention from the lawmakers. The framing of a law which would effectually reach this evil is surrounded with many difficulties, and whether it has been accomplished by the act proposed a year ago by the National Board of Trade and recently enacted in New York and New Jersey, can only be

ascertained by actual experience. The bill has been presented to the Legislatures of a number of States, and, though passed only in New York and New Jersey, is likely to be adopted hereafter in other communities.

The report was referred to the Committee on Publication.

Prof. Judge, of Cincinnati, then submitted the report of the committee on

PRIZE ESSAYS.

It recited that as none of the essays which had been submitted were worthy of a prize, recommended that no prize be awarded. The report was received and adopted.

The report of the special Committee on Membership was then read by Robt. H. Cowdrey, of Chicago, and no objection being made, the report was referred to the Committee on Publication.

The Permanent Secretary read his report, which treated principally of the business of his office, and called attention to one or two alterations in the by-laws which became necessary owing to the creation of the Business Council.

At 11.30 the Association adjourned until 3 o'clock, for the purpose of visiting the pharmaceutical exhibition at Merchant's Exchange.

Afternoon Session.

The President-elect announced that there would be a meeting of examining boards of the different State Boards of Pharmacy, at the Windsor Hotel, at 8 o'clock P.M. Also a convention of the Teaching Colleges of Pharmacy would meet in Masonic Hall at the same time. Also that the delegates and their ladies would be provided with carriages, which would call at the different hotels at 6 o'clock P.M., for the purpose of driving them through different parts of the city.

OFFICERS OF THE COUNCIL.

The Secretary of the Council then read the minutes of the morning session. The minutes recited that during the session the following officers had been elected:

Chairman — Joseph P. Remington, of Philadelphia. *Vice-Chairman*—W. J. M. Gordon, of Cincinnati. *Secretary*—Geo. W. Kennedy, of Pottsville, Pa. *Committee on Membership*—Geo. W. Kennedy, of Pennsylvania, Chairman; H. J. Menninger, of New York; Jno. Ingalls, of Georgia; T. Whitfield, of Illinois; George Leis, of Kansas; J. M. Maisch (*ex officio*), Philadelphia; Chas. A. Tufts (*ex-officio*), New Hampshire. *Finance Committee*—S. A. D. Sheppard, Chairman, of Boston; J. L. Lemberger, of Pennsylvania; Chas. A. Tufts, of New Hampshire; E. Painter, of California; and J. F. Judge, of Cincinnati. *Committee on Publication*—J. P. Remington, Philadelphia, Chairman; C. L. Diehl, of Kentucky; Wm. Saunders, of Canada; J. M. Maisch, of Philadelphia; W. J. M. Gordon, of Cincinnati.

The Council also recommended that the Committee on Publication be continued for the ensuing year. Also, that the applicants for membership, who had been before the Council during the past year, should be admitted as members with one exception.

THE NEXT MEETING.

A number of invitations having been received from different places, Secretary Maisch moved that a committee of three be appointed whose duty it should be to take up the several memorials and decide upon the place for the holding the next annual meeting, and the Chair appointed Wm. Saunders, of London, Ont., C. Houston, of Columbus, O., and Wm. H. Rogers, of Middletown, N. Y.

The question of a point concerning personal comfort at the next annual meeting was then discussed. Mr. Seabury, of New York, thought the place selected should be some point where the thermometer would not range above 85°. The subject was further discussed by Messrs. Markoe, Menninger, Buck, and others, and was then laid upon the table. [At the afternoon session of the third day Niagara Falls was chosen; the second Tuesday in September being the time appointed. Mr. Hiram E. Griffiths was elected Local Secretary.]

PAPERS AND QUERIES

were then called for. Prof. Remington read a reply from Prof. Edgar L. Patch, of Boston, to *Query No.* 13.

"REACTION BETWEEN TR. FERRI CHLORIDI AND TR. GENTIANÆ COMP."

This ably written paper, covering nearly thirty pages of foolscap, was read by Prof. Remington in the absence of the writer. We regret that space will not permit us to reproduce the article in its entirety. Mr. Patch, after going into a short history of the controversy on the question of tannin in gentian, gives a full and clear account of his own investigations. He also alludes to and compares the labors of others, especially those of Messrs. Maisch, Drury, Kennedy, Punchard, Jules Ville, and Edw. Davies. The writer concludes: "The brown color produced on mixing preparations of gentian and ferric chlorides is due in part to gentisic acid, and possibly in part to gentiopicrin (not having obtained gentiopicrin in a pure condition, this latter statement may need substantiating). Gentiana lutea contains an iron greening body, producing the reactions of a tannin. Mr. Kennedy's acid from Frasera Walteri does not correspond with gentisic acid from Gentiana lutea. While the resins and gentisic acid are insoluble in water, in combination, in addition to the tannin body, coloring matter, bitter principle, etc., it is very difficult to remove them from solutions of the drug.

"The large precipitate obtained in 1876 with concentrated decoction of gentian and solution of gelatin and alum I now see was largely due to pectous substances. Mr. Punchard's alcoholic extract after washing with ether gave a marked dark-green color with Fe_2Cl_6. This color he ascribed to gentisic acid, and, as his gentisic acid was an amorphous brown body, he evidently mistook the mixture of resin and gentisic acid for pure gentisic acid, which latter always gives a dark-brown instead of a green color with Fe_2Cl_6.

"Trommsdorff's description of gentisic acid corresponds more nearly to the facts, as I have found them, than any other.

The reading of this excellent paper was listened to with marked attention; and was discussed by Messrs. Maisch, Lloyd, and Kennedy.

The next paper, by Dr. Charles Rice on the

"DESIRABLE MELTING POINT FOR PETROLEUM OINTMENT,"

was, in the absence of the writer, read by Dr. Menninger. (See p. 292.)

After debate by Messrs. Remington, Thompson, Markoe, Menninger, Ebert, and Sloan, it was moved by Prof. Remington that the "American Pharmaceutical Association express its desire to the Committee on the Revision of the next U. S. Pharmacopœia that but one petroleum ointment should be officially recognized, and that it should have a melting point of 104° F., which was adopted.

Query No. 10 was answered by Mr. J. L. Lemberger, of Lebanon, Pa.

"CAN MILK-SUGAR BE PROFITABLY PREPARED IN THIS COUNTRY."

The writer gives statistics of importations for eight years. In 1873 the value of importations was $3,233, while in 1880 it had risen or increased to a value of $25,430, showing an eightfold increase. Mr. Lemberger says: "It is an interesting fact in this connection that American enterprise is at last taking hold of the matter, and milk-sugar *is* manufactured in this country. In the cheese and butter manufacturing districts the whey yielding milk-sugar is not considered, as formerly, valuable in stock raising, and is therefore comparatively a waste product." The writer presented a sample of milk-sugar made at a cheese factory, in Holland Patent, in the State of New York. He says that this factory has demonstrated

that the product can be profitably manufactured. The writer has been informed that milk-sugar is also made at a factory in Little Falls, N. Y.

The subject was debated by Messrs. C. S. Hallberg, of Chicago, and Albert E. Ebert, of Peoria, Ill.

JABORANDI AND PILOCARPINA.

In reply to Query 22, Mr. Geo. W. Kennedy, of Pennsylvania, reported on "*Jaborandi, the best method for making a fluid extract and for extracting its active principle, Pilocarpina.*" The writer has found spurious and unfit jaborandi in the market. He says: "The stems should be rejected, as they have been found to contain little, if any, of the alkaloid. Leaflets should be selected which are uniform and of dark-green color." He agrees with Budel that the leaves of Piper lætum appear in the market as Brazilian jaborandi. This does not contain any similar alkaloid. "There are also a number of other South American plants sold as jaborandi, simply because they have some resemblance to the true variety and possess diaphoretic properties, and these may or may not be inferior to the Pilocarpus pennatifolius." The writer has prepared a fluid extract by exhausting the drug with alcohol of a 75 per cent strength. He reserves the 14 ounces of percolate which are first obtained, continues the percolation until the drug is exhausted; he then evaporates the second percolate to 2 ounces, and mixes it with the reserved percolate. Mr. Kennedy recommends the following process for the isolation of pilocarpina. "Take of jaborandi leaves two ounces, reduce to a fine powder, moisten the drug with water acidulated with muriatic acid in the proportion of a pint of the former to one fluid drachm of the latter, pack in a conical glass percolator, and pour on a sufficient quantity of the menstruum till it commences to drop from the percolator; close the lower orifice with a cork and cover the top to exclude air, and allow it to remain in this condition forty-eight hours; afterwards remove the cork, and continue percolation with the same menstruum until two pints are obtained for every pound of drug used; transfer to an evaporating dish, and by means of water-bath evaporate to the consistence of a soft extract, add sufficient quantity of warm water to permit of filtration, treat the filtrate with sodium bicarbonate in slight excess, which is known when effervescence ceases. The object of the soda salt is to decompose the hydrochlorate of the pilocarpina, the result being the liberation of carbonic acid gas, chloride of sodium, and pilocarpina; then with a large quantity of chloroform, using one ounce for every ounce of filtered extract, agitate occasionally for ten hours, allow it to subside, separate the chloroformic solution and evaporate spontaneously, re-dissolve in chloroform, and evaporate as before. Pure pilocarpina is left, and this, as obtained, is a soft glutinous non-crystallizing mass, but produces crystalline salts. Its salts with organic acids are uncrystallizable according to Dr. E. R. Squibb. With iodine, a heavy reddish-brown precipitate is obtained; with tincture of iron, no change; with salicylic acid, no change; bichromate of potash, light-blue color; by the addition of sulphuric acid color is destroyed; chloride of gold, a heavy lemon-yellow colored precipitate.

Discussion by Messrs. Saunders and Menninger on the assertion recently made at the meeting of Am. Science Association, that pilocarpina (internally administered) would change the color of hair to a darker hue. Mr. Hallberg gave as peculiar action of pilocarpina that when acidulated with sulphuric acid and exposed to ammoniacal vapors it turns green.

Third Day—Morning Session.

It was announced by the chair that an amendment to the by-laws, relating to the fees accompanying applications for membership, had been received. The amendment was read by the Secretary and being put to a vote, was accepted. Another amendment was offered by Geo. F. H. Markoe, of Boston, which was as follows: That the newly elected officers take their places at the opening of the final session of the annual conventions.

A vote was taken on this question and the amendment was indefinitely postponed.

The reading of Papers and Queries was then resumed.

SOLUBLE FERRIC PHOSPHATE.

Mr. Louis Dohme, of Baltimore, read a volunteer paper on this subject from which we extract: "When a solution of ferric sulphate is added to a solution of sodic phosphate, ferric phosphate ($FePO_4$) is thrown down as a bulky white precipitate, which, like precipitated ferric pyrophosphate ($Fe_43P_2O_7$), is slightly soluble in water, but like it also very soluble in a solution of citrate of sodium, forming a green solution, which, when evaporated to a syrupy consistence, then spread upon plates of glass and allowed to dry at a moderate temperature, forms beautiful transparent green scales, which are quite soluble in water.

The following formula will yield good results:

Take of

Phosphate of sodium, *sixty parts*.....60
Solution of tersulphate of iron, *seventy parts*..70
Citric acid, *fifteen parts*.....15
Bicarbonate of sodium, *fourteen parts*.....14

Dissolve the phosphate of sodium in *three hundred* parts of water, filter the solution and add to it gradually, and under constant stirring, the solution of tersulphate of iron, previously mixed with three hundred parts of water. Pour the whole on a wet muslin strainer and allow the precipitate to drain; then return it to the vessel and mix intimately with *five hundred* parts of water. Again drain it on the strainer and repeat the operation once more. Dissolve the citric acid in sixty parts of water and gradually add the bicarbonate of sodium. Heat the solution on a water-bath and gradually add the precipitated ferric phosphate, stirring constantly till it is dissolved. Filter the solution and evaporate it on a water-bath to the consistence of thick syrup and spread it on plates of glass so that the salt when dry may be obtained in scales. (The scaled salt contains about 15 per cent of iron.) The writer also gave a method of preparing this soluble salt by mixing solutions of officinal ferric citrate and pure sodic phosphate.

A discussion on this paper was had by Messrs. Remington, Maisch, and others.

Mr. E. B. Stuart read a very interesting paper on microscopic examination of the

RHIZOMA OF APOCYNUM ANDROSÆMIFOLIUM

and of *Apocynum cannabinum*. This paper was illustrated by charts and drawings, the results of Mr. Stuart's work. A discussion on the subject by Messrs. Saunders, Maisch, and Lloyd followed the reading.

THE SENEGA OF COMMERCE.

A most interesting paper written by Messrs. J. U. and C. G. Lloyd was read by Prof. Remington and illustrated with numerous specimens by Mr. J. U. Lloyd (see p. 290). This paper caused an extended discussion, in which many members participated. The Messrs. Lloyd's claim for the hitherto so called *spurious* senega the right of being henceforth considered as the *normal* and *standard* drug, and the support of their claim by the production of specimens, having all the claimed virtues of the *officinal* root, was a great surprise to nearly every one present. The paper will be found on another page of NEW REMEDIES.

Third Day—Afternoon Session.

The minutes of the last meetings of the Association and of the Business Council, including a list of 142 newly-elected members, were read and approved.

THE TREASURER'S REPORT

was also transmitted by the council, from which it appears that there was a balance of cash on hand at last report of $1,561.61; that the *Receipts* from various sources during the year were $5,255.00. The *Disbursements* were $5,189.55, leaving a *balance* to new account of $1,627.06. The Auditing Committee reported a satisfactory examination of the treasurer's books and accounts.

The reading of Papers and Queries was resumed.

COD-LIVER OIL EMULSIONS.

In answer to Query No. 19, Mr. Hiram E. Griffiths, of Niagara Falls, communicated his experience with *Emulsions of Cod-Liver Oil.* The writer, after experimenting for some time, gives preference to gum tragacanth as an emulsifying agent and presents formulæ for an emulsion of cod-liver oil with hypophosphites of lime and soda. He dissolves 44 grains of powdered tragacanth in six drachms of glycerin and two ounces of hot water; then dissolves 36 grains of hypophos. of lime, 18 grains of hypophosphite of soda, and one and a half ounces of sugar in five ounces of water. He flavors with oil almonds 25 minims, and wintergreen 40 minims, adding the essential oils first to six ounces of cod-liver oil, gradually adds to these the solutions of lime and soda and the mucilage of tragacanth, (alternately adding small portions of the solution and the mucilage). He finally completes the emulsion by stirring with a "Dover egg-beater."

GRAPE SUGAR AND GLUCOSE.

Query No. 12.—*Can grape sugar or glucose be substituted for cane sugar, honey, and glycerin in pharmaceutical preparations?*

Replied to by Mr. Chas. B. Allaire. The writer says that glucose can never be used as a perfect substitute for cane sugar, owing to its deficiency in sweetness, and gives his attention mainly to their comparative values as preservative agents. The writer has made samples of all officinal syrups, using grape sugar where cane sugar is indicated, and glucose of 1.317 gravity where simple syrup is indicated. These samples were made early in June of this year, were kept in a room at the warm temperature which prevailed during this time and were also exposed during a portion of each day to the direct rays of the sun. The following list comprises those which fermented:

Gum arabic, almonds, cherry bark, orange peel, orange flower, rhatany by percolation.

The following became more or less mouldy: citric acid, orange flowers, lemon juice, squill compound, and ginger.

The following remained unchanged and in good condition: garlic, iodide of iron, ipecac, rhatany from fl. ext., rhubarb, rhubarb aromatic, red roses, blackberry, sarsaparilla co., squill, senega and tolu.

A sedimentary deposit of lime was found in all the samples, which is due to the presence of lime in the glucose. This deposit may be easily separated by filtration. The writer concludes that there is no advantage to be gained in the use of glucose or grape sugar except a very slight saving in the cost. At the conclusion of the reading of this paper, Mr. *Alb. E. Ebert* criticised the various distinctions made between glucose and grape sugar. Being a large manufacturer of glucose, Mr. Ebert's remarks were listened to with great satisfaction.

POISONOUS SOLUTIONS FOR DISPENSING.

Mr. Geo. W. Sloan, of Indianapolis, made reply to Query No. 1: "*What solutions of poisonous substances, usually prescribed in small amounts, is it desirable to keep ready prepared in the prescription case? What strength of each is most convenient? Name the menstruum.*

The writer reports that, from his own experience, "solutions of alkaloid salts made with *distilled* water, carefully filtered, kept in well-stoppered bottles in a *dark* closet of an equable temperature, do keep well for reasonably long periods." He appends a list of solutions which he keeps on hand in his own practice, viz.:

Article.	*Solvent.*	*Amount.*
Chloral hydrate	Water	3 i. in fl. 3 i.
Corrosive sublimate	Alcohol	gr. i. in fl 3 i.
Zinc chloride	Water	gr. ij. in fl. 3 i.
Atropia sulph	Water	gr. i. in fl. 3 i.
Duboisin	Water	gr. i. in fl. 3 i.
Eserin sulphate	Water	gr. i. in fl. 3 i.
Strychnia sulph	Alcohol 1 / Water 3	gr. i. in fl. 3 ij.
Calcium bromide	Water	3 i. in fl. 3 i.
Zinc bromide	Water	3 i. in fl. 3 i.

PHOSPHATE OF SODIUM OF COMMERCE.

Query No. 12.—*A report on the quality of phosphate of sodium as found in commerce.*

Prof. Bedford said, at the time he accepted this query, he was not aware that Mr. Geo. W. Kennedy read a paper on the same subject before the Pennsylvania Pharmaceutical Society, held in Allentown, June 8th and 9th, 1880. Mr. Bedford then recites the results of Mr. Kennedy's investigation. Mr. Kennedy examined six specimens, representing samples of the several manufacturers in this country, and found that all contained large proportions of sulphate of sodium; two contained small quantities of the carbonate of sodium, while only traces were present in the other samples. Mr. Kennedy also found traces of lime in two samples. All samples were free from arsenic, and the phosphoric acid present was the tribasic variety. This examination is conclusive that none of the commercial varieties of phosphate of soda can be regarded as of sufficient purity to use without re-crystallization or purification.

PRECIPITATES IN FLUID EXTRACTS.

Mr. J. U. Lloyd read a paper with the above title which throws an entirely new light upon this hitherto perplexing subject. He offers an explanation of the difficulty which appears to us to be the only true one. An abstract of the paper will be found in our next issue.

COLOGNE.

A volunteer paper on cologne or "Spiritus odoratus" was read from Mr. J. Covell, of Iowa. This gentleman offers a formula supplementary to an answer to Query No. 9 of 1880. It is as follows:

Take of:

Oil lavender flowers	3 iv.
Oil rosemary flowers	3 ij.
Oil neroli bigarade	3 x.
Oil petit grain	3 x.
Oil lemon peel	3 x.
Oil orange peel	3 xx.
Oil bergamot	3 xx.
Oil rose geranium	3 iv.
Tinct. styrax	3 xvi.
Cologne spirits	O xxvi.
Orange-flower water	O vi.

Product to measure 4 gallons.

NOTE.—Use avoirdupois weights for the oils. Mix the oils with the alcohol and allow the mixture to remain for twenty-four hours, then add gradually the orange-flower water.

POWDERED EXTRACTS.

Mr. C. S. Hallberg, of Chicago, answered Query No. 32. "*Powdered extracts present some advantages at the dispensing counter. What solid extracts may advantageously be kept in that form, and how are they best prepared?*"

The writer has found the powdered extracts of the markets unsatisfactory, as they are liable to become a mass, and attributes this peculiarity to the *too* small percentage of admixture. Mr. H. gives the result of his experiments which he made to determine the length of time a small percentage of admixture would prevent the extract from losing its powdered form, also the comparative value of milk-sugar and dextrin as an addition.

Any abstract of this valuable paper would be an injustice to Mr. Hallberg, and we hope to present the paper in its entirety in a future issue.

THE REPORT ON THE PROGRESS OF PHARMACY

not being ready, was directed to be referred to the Council when ready.

THE REPORT ON EXHIBITION

was also referreed to the Council.

Resolutions of thanks were passed to the *press* of Kansas City, the retiring officers, and to citizens of Kansas City.

Mr. Geo. Seabury addressed the Association at some length, advocating a plan of social entertainments at future meetings of the Association, whereby the Association or its members should defray the expenses incident thereto, inasmuch as the present custom of accepting entertainments was, in many instances, an injustice and a hardship on local associations of druggists. After some discussion, the question was referred to a committee consisting of Messrs. Geo. Seabury, Thos. J. MacMahan, and W. H. Rogers. After reading the minutes of the meeting, the Association then adjourned.

ENTERTAINMENTS AND EXCURSIONS.

A banquet and reception was tendered the visitors by the local druggists, at Board of Trade Hall, on Thursday evening, which was very largely attended, and was a brilliant ending of the week's meeting. The spacious hall was thronged with ladies and gentlemen until a late hour, and the affair was in every way a success. A committee with a large corps of assistants saw to it that the comfort and ease of the guests was insured. The festivities were enlivened by music from the orchestra of the Opera House.

On Saturday and Sunday preceding the meeting, a large number of members stopping at St. Louis were pleasantly entertained by a number of their professional brethren.

Three excursion parties for different sections started out after the adjournment; one to Santa Fé and New Mexico; another to Denver, Colorado, and probably to California; and the third to Wisconsin and Minnesota. None of the excursionists have returned at the time of writing this report, but it is to be presumed that the inherent qualities of the excursionists insured for them all a very pleasant trip.

Illinois State Pharmaceutical Association.—The second annual meeting of this Association will be held at Peoria, October 18th–19th, 1881, and a large gathering of the druggists of the State is anticipated.

Druggists not members and desirous of becoming such will have an opportunity of joining the Association at this meeting. The rates of fare on all railroads centering and leading into Peoria have been reduced to 1½ and 1½ fare for all wishing to attend the same, and reduced rates at hotels have been provided for. The Committee of Arrangements will leave nothing undone to make this a most enjoyable meeting.

A fine display of pharmaceutical preparations and druggists' sundries is promised by the leading houses of the country.

Address all communications to V. H. DUMBECK,
Local Sec'y.

The Erie County Pharmaceutical Association.—The annual meeting of the Erie County Pharmaceutical Association was held at their rooms, Monday evening, August 1st, and was largely attended.

The retiring President, Mr. J. Rieffenstahl; Treasurer, Mr. C. M. Lyman, and Secretary, Mr. H. P. Hayes, presented their several reports, which showed the Association to be in a very flourishing condition, both as to membership and finances. Messrs. R. K. Smither, J. P. Diehl, and C. O. Rano, the outgoing Board of Examiners, presented a detailed report of their work for the year. A large number of applications for membership had been referred to them. Proprietors of pharmacies had been admitted upon satisfactory recommendations, but assistants (unless graduates of pharmacy) were invariably subjected to a rigid practical examination, in which they were required to attain at least 70 per cent. No applications had been reported adversely, the course adopted being to simply withhold unannounced such applicants as failed to come up to the prescribed standard.

The Secretary announced that the lithographed certificates of membership were completed and would be furnished to members in good standing on application to him.

The following officers were elected for the ensuing year:—*President*, Julius Rieffenstahl. *First Vice-President*, George I. Thurstone. *Second Vice-President*, Thomas Stoddart. *Secretary*, Horace P. Hayes. *Treasurer*, C. M. Lyman. *Board of Examiners*, R. K. Smither, A. C. Anthony, and George Riemann.

MR. H. P. HAYES, the Secretary of the Erie County (N. Y.) Pharmaceutical Association, has favored us with a blank copy of the certificate of membership in that body, which is an exceedingly handsome specimen of designing and lithographic work.

Cincinnati College of Pharmacy.—AT a regular meeting held on Wednesday, August 10th, the following members were duly elected to serve for the ensuing term: John Weyer, Jas. H. Feemster, Julius Greyer, and Louis Klayer.

Professor E. S. Wayne read a long and interesting paper (accompanied with illustrations of the works) upon "Salt and Bromine Manufacture in the Vicinity of Pomeroy, Ohio, and at Mason City, W. Va.;" also, describing the geological formation from which the brines yielding salt and bromine are obtained.

The manufacturing of salt at these points was stated to be equal to that of the New York Salt Works in quantity, and the annual yield of bromine about 250,000 pounds, a large portion of which finds a market in Europe, the rest used by manufacturing chemists in the United States in the production of potassium bromide. He also stated that the brines of the Ohio valley were much richer in bromine than those of Saginaw, Mich., and those of New York, and that this fact makes the Ohio valley the only locality from which bromine can be profitably and cheaply obtained in the United States.

Prof. Wayne also read a paper upon the "Cathartic Principle of Castor Oil." From experiments made upon the oil itself and upon the cake left after pressing, it appears that the superior cathartic effect of beans is due to an acid body, only slightly soluble in the neutral oil, and the acid readily separated from it in alcoholic solution of plumbic acetate, the same acid existing in the beans and cake in larger quantities, and accounting for their excessive cathartic action.

Mr. John Weyer presented the College with a splendid specimen of Lake Superior copper ore, in which native copper and oxides of copper were blended.

At a special meeting Monday, August 1st, the following delegates and alternates were elected to the American Pharmaceutical Association:—*Delegates*, Jas. H. Feemster, E. S. Wayne. Emil Heun, J. D. Wells, and W. J. M. Gordon. *Alternates*, John Weyer, Wm. M. Gleick, T. L. A. Greve, Jas. M. Ayers, and Ernst Wilfert.

F. SCHUERMAN,
Corresponding Sec'y.

Bleached Corks.—A correspondent of the *Pharmaceutical Journal* states that a strange occurrence came under his notice a few days since: A prescription was handed to him, was duly dispensed and sent to the patient's home. The following morning the medical man brought the bottle back, saying that one bottle (the acid) smelt so badly that the patient thought putrid water had been used; on taking out the cork, there was no doubt that sulphuretted hydrogen had been generated. Another acid mixture was dispensed, which the medical man wanted, and it appeared, as it should, perfectly free from any taint. On examining it twenty minutes later, it was found just as bad as the first. The two were dispensed in precisely the same way, with the same kind of bottle, cork, acid and water (filtered). The druggist then dispensed a third, using the same kind of bottle, acid, and water, but a short vial cork instead of a long dispensing one. This one remained in a perfect state, not decomposing in the slightest degree. From these results it seems conclusive that it was the cork that caused the sulphuretted hydrogen to be formed, and the only way to account for it is that the corks had been bleached with sulphurous acid [?].

ITEMS.

Opium Cultivation in the Himalayas.—On the above subject, Captain I. F. Pogson recently communicated a paper to the Agricultural and Horticultural Society of India, in which he says: "British India, with its varied and fertile soils and climate, is capable of producing sufficient opium of all kinds to supply Europe, Asia, Africa, Australia, and all America. The demand for first-class opium, for medicinal purposes, increases daily, and though the Himalayan cultivators are able to produce it, no effort is made to throw this most valuable description of opium into the London market. The Bunneahs have the entire poppy cultivation and opium trade in their hands, and the practical result is their enrichment and the hopeless impoverishment of the cultivators.

"The following is given as an example on a large scale: In the British Himalayan province of Kishteewar, miles and miles of land are annually placed under poppy culture. The very large quantity of first-class opium which results is sent or smuggled into China *via* Ladak and Thibet, and thus a leak of perhaps not less than 50 lacs of rupees is steadily taking place in neglected and unknown portions of opium-producing British territory. The Thibet and Hindoostan road begins at Kalka, and the tracing ends at Shipkee, on the Chinese frontier. A road, such as it is, connects Kishteewar with the valley of the Sutlej in Kunawar (Upper Busahir), and so joins the Thibet road line. Now, if a regiment of pioneers were sent to Kishteewar to open out and improve the existing road, and another half regiment of pioneers were sent to open the road to Shipkee so as to fit it for mule traffic, the opium of Kishteewar, produced under the superintendence of an opium agent, could be sent to Shipkee, and a regular frontier trade in opium and merchandise established between British India *via* Simla and China. Of course, every inducement and facility should be offered to Thibetan and Chinese traders to visit Simla, and as it is perfectly legitimate for the government of India to convert an illicit intra-Himalayan opium trade with Thibet and China into a legitimate traffic, all parties concerned would be benefited, and the government especially so.

"The Kishteewar poppy cultivation would be taken out of the Bunneah's hand, and all the Zemindars released from their thraldom. The production of first-class medicinal opium for export to Europe and America would speedily follow, and as such opium should be sold at a government opium mart, to be established at Umritsur, the representatives of London firms would purchase readily and largely an opium rich in morphia and other valuable medicinal alkaloids extant in superior opium, but deficient or entirely absent in the opiums of Bengal and Behar. Captain Pogson considers that it is quite possible for the Indian opium revenue to be increased to twelve millions sterling from its present figure, leaving Malwa opium duty out of the calculation."—*Mag. of Pharm.*

Improvement in the Production of Magnesia.—Magnesia is becoming of great importance in the manufacture of cements, artificial stones, fire-proof bricks, furnace linings, retorts, etc. Many of its industrial applications have been limited by the high price of the native magnesite as imported from Greece. Magnesium chloride has been produced in abundance at Stassfurt and elsewhere, but all attempts at its conversion into magnesia have hitherto proved unsuccessful. Finely-ground lime has been added to the liquid magnesium chloride, but even with the greatest care the result has been an almost worthless article, containing only from 60 to 70 per cent of actual magnesia, and costing £4 per ton. Another process has been to concentrate the magnesium chloride liquors, and heat till hydrochloric acid was evolved and magnesia remained behind. Here, also, practical difficulties were encountered. The decomposition is very tedious, the acid too weak to be salable, and the magnesia is apt to retain compounds of chlorine which interfere with its applications. If a stronger heat is used, the material loses all coherence and becomes worthless [for *technical* purposes; for pharmaceutical or medical purposes, however, this would still be useful, provided, the kind and quantity of accompanying impurities are harmless and insignificant.—ED. NEW REM.]

A patent recently taken out by M. Closson, of Paris, solves the problem in the simplest manner. The crude lye of magnesium chloride is treated, not with burnt lime, but with burnt *dolomite*. In this natural combination the chlorine of the lye combines completely with the lime of the dolomite; so that if the latter is used in a state of purity—as it is readily procurable in bulk—a magnesia of from 98 to 99½ per cent can be made on the large scale without any difficulty. The process is already in operation at Leopoldshall. The magnesia bricks there prepared resist even the flame of the oxy-hydrogen blast. If lime is present, even to the extent of 5 per cent, the bricks, etc., if moistened when hot, fly into fragments. Magnesia bricks prepared about ten years ago by Tessié du Motay, from Greek magnesite, and containing about 13 per cent of lime and silica, were melted in some experiments recently made in Sheffield. The cost of magnesia as prepared by the Closson process, is about 15s. per ton. There is another important feature in the patent. The crude magnesium chloride contains a certain quantity of magnesium sulphate. To remove this, calcium chloride is added. The sulphate of lime, as thus precipitated, is used by paper makers, under the name of pearl-hardening, and has been specially prepared in England for their purposes.

Closson's patents for Germany, Austria, and England have been bought up by a Mr. Schmidtmann, a potash manufacturer of Aschersleben. It is to be expected that as absolutely fire-proof furnace linings, crucibles, etc., can now be procured, the use of the oxygen blast will assume a practical form, and that the way will be opened for great improvements in metallurgy.—*Chem. News*, Aug. 22d.

PHARMACEUTICAL CALENDAR.—October.

N. B.—The officers of Societies, Colleges of Pharmacy, Pharm. Associations, etc., will oblige us by forwarding schedules of their meetings, lists of officers, and any changes that may be desirable.

Date.	Society Meetings.
Mon. 3d.	Erie Co. Pharm. Ass.—Meet. at Buffalo.
	Pittsburgh Coll. Ph.—Quart. Meet.
Tues. 4th.	Davenport (Iowa) Pharm. Ass.—Quart. M.
	Chicago Coll. Pharm.—Semi-annual Meet. and Alumni Meet.
	Phila. Coll. Pharm.—Trust. Meet.
	Maryland Coll. Pharm.—Trust. Meet.
Thurs. 6th.	N. Y. Coll. Pharm.—Trust. Meet.
	Louisville Coll. Pharm.—Pharm. Meet.
	Massach. Coll. Pharm.—Trust. Meet.
Mon. 10th.	Rhode Island Pharm. Ass.—Quart. Meet.
Tues. 11th.	Pittsburgh Coll. Pharm.—Trust. Meet.
	Chicago Coll. Pharm.—Trust. Meet.
	National Coll. Ph.—Trust. Meet.
	St. Louis Coll. Pharm.—Pharm. Meet.
	Kings Co. Pharm. Soc.—Meet. at Brooklyn.
Wed. 12th.	New York Coll. Pharm.—Alumni Exec. M.
	Cincinnati Coll. Ph.—Meet.
	Newark Pharm. Assoc.—Meet.
Thurs. 13th.	California Coll. Pharm.—Quart. Meet.
	Louisville Coll. Pharm.—Directors' Meet.
	N. Y. Germ. Apoth. Soc.—Meet.
	Maryland Coll. Pharm.—Meet.
	Phila. Coll. Pharm.—Alumni Pharm. Meet.
Tues. 18th.	St. Louis Coll. Ph.—Trust. and Alumni M.
	Illinois Pharm. Ass.—Annual M. at Peoria.
	Phila. Coll. Ph.—Pharm. Meet.
Thurs. 20th.	New York Coll. Pharm.—Quart. Meet.